MARITIME PROVINCES EDUCATION FOUNDATION

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FONDATION D'EDUCATION DES PROVINCES MARITIMES

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MARITIME
ENERGY EDUCATION
FIELD TRIP GUIDE

The Maritime Provinces Education Foundation has been established by the Departments of Education to provide the framework to facilitate the development of a number of regional projects in education. It is currently funded by the Departments and the Council of Maritime Premiers.

February 1983

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*MEECC is an interprovincial committee established by the Departments of Education with representation from the following departments and agencies:

New Brunswick:	Department of Education Energy Secretariat New Brunswick Electric Power Commission (also representing Nova Scotia Power Corporation and Maritime Electric Co. Ltd.)
Nova Scotia:	Department of Education Deparment of Mines and Energy
Prince Edward Island:	Department of Education Department of Energy and Forestry

Council of Maritime Premiers

Why a Maritime Field Trip Guide?

More often than not, an energy site, worthy of study, is situated within a short driving distance of your community. A visit to such a site could provide a first-hand experience and might stimulate further interest and investigation for the classroom study of energy. To research the field trips that are available and suitable can occupy a great deal of time in a teacher's already crowded schedule of responsibilities. The Maritime Field Trip Guide attempts to identify many of the suitable energy/environment field trips and speakers available in the region. By providing comprehensive information for each field experience and speaker, this guide will save on research time and assist you in the selection of an appropriate experience for your students.

After having used this guide, you may have suggestions or comments on the organization, content or additional field experiences. Please take the opportunity to write us:

Maritime Energy Education Coordinating Committee
P. O. Box 2044
Halifax, N.S.
B3J 2Z1

How do I use this Guide?

Field trips and speakers listed in this guide have been classified under three main headings:

1. **Non-renewable:** those sites which concern themselves with energy sources which are limited in supply.

2. **Renewable:** those sites which concern themselves with energy sources which are unlimited in supply.

3. **Speakers and Other Resources:** those people and resources which are available to assist your classroom and in providing information on a particular aspect(s) of energy and/or related environmental and social concerns.

The following information is included for each speaker and other resource:

title
service/resource available
location of service/resource
suitable grade level(s)
supervision requirements
specific booking arrangements
any special requirements
anticipated learning outcomes
suggested preparation and follow-up.

Once you have selected the appropriate field trip(s) and/or speaker(s) and read the information provided, it is suggested that, when possible, you initiate contact by phone. Should suitable arrangements be available, confirm your booking in writing.

How can I ensure a successful field trip?

Every field trip is an unique experience with possibilities for both the expected and unexpected to happen. To help minimize those unwanted surprises and to maximize the educational and social value of a field trip, the following questions might assist you in your pre-planning, on-site experience, post evaluation and follow-up.

Pre-trip planning

Have you and your students clearly identified the objectives of the field trip?

To what extent have you involved students in planning for this field trip?

Are you acquainted with Board policies re: bussing, insurance, liability and parent involvement?

Have you drafted an equipment list of required and recommended items?

Are you aware of any special physical needs of students (medical, diet, etc.)?

Do you have adequate and prepared supervision?

Have you reconfirmed your time, date and place of meeting with field site contact personnel?

Are you familiar with the field trip site? If not, is there a guide?

Have behavior expectations and management guidelines been established with your students?

Are you and your assistants familiar and satisfied with the itinerary?

On-site Tour

Is there flexibility in the tour for special interests or happenings?

Are students aware of on-site do's and don'ts?

Is the tour guide aware of students' knowledge levels and interests?

Have washroom and medical facilities been identified?

Can all of the group hear and understand tour site comments?

Throughout the trip, is there opportunity to question and discuss?

Post-trip Follow-through

What evaluation procedures are to be used to ascertain whether trip objectives have been met?

Has the field experience suggested further classroom activities?

Have letters of appreciation been sent by students and/or teacher to trip hosts/hostesses and assistants?

How could you improve this experience in its pre-planning and on-site stages?

Have you provided feedback to the administrative staff?

Has a full accounting of expenses and reimbursements been completed?

New Brunswick

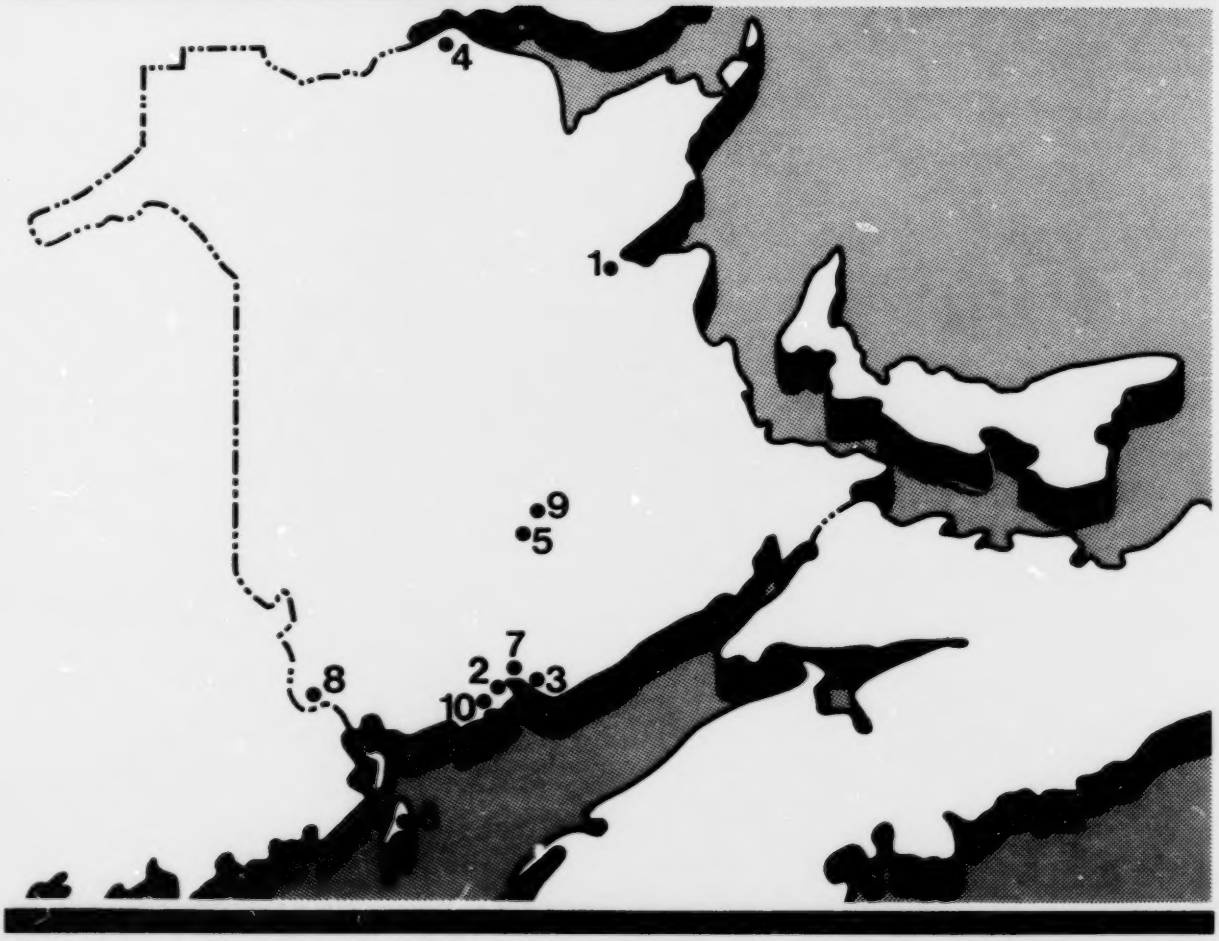
Non-Renewable Sites

Nouveau-Brunswick

Installations à Energie Non Renouvelable

1. Chatham Thermal Generating Station
2. Coleson Cove Generating Station
3. Courtenay Bay Generating Station
4. Dalhousie Thermal Generating Station
5. Grand Lake Power Plant
6. Grand Manan Diesel Generating Station
7. Irving Oil Limited
8. Milltown Generating Station
9. New Brunswick Coal Company
10. Point Lepreau Generating Station

1. *Centrale thermique de Chatham*
2. *Centrale de Coleson Cove*
3. *Centrale de Courtenay Bay*
4. *Centrale thermique de Dalhousie*
5. *Centrale de Grand Lake*
6. *Centrale diesel de Grand Manan*
7. *Irving Oil Limited*
8. *Centrale de Milltown*
9. *New Brunswick Coal Company*
10. *Centrale de Pointe Lepreau*



NEW BRUNSWICK: NON-RENEWABLE SITES

1.	Chatham Thermal Generating Station	Coal/Oil
2.	Coleson Cove Generating Station	Oil
3.	Courtenay Bay Generating Station	Oil
4.	Dalhousie Thermal Generating Station	Oil/Coal
5.	Grand Lake Power Plant	Coal
6.	Grand Manan Diesel Generating Station	Oil
7.	Irving Oil Limited	Oil
8.	Milltown Generating Station	Coal
9.	New Brunswick Coal Company	Coal
10.	Point Lepreau Generating Station	Uranium

CHATHAM THERMAL GENERATING STATION - N.B. POWER

Description of Site: The site consists of 2 boilers and 2 turbines and their related accessories. This plant was the first to assume the dual role of oil or coal burning at very short notice. Presently it is only used for standby and research development. The tour will include the generators, boilers and switch board.

Location of Site: This site is located on Lower Water Street in the east end of Chatham, N.B.

Grade Level: Grades 1 - 12

Tour Length: 1-2 hours

Size Limitations: 50

Supervision Requirements: 1 adult for 10 students

Booking Arrangements:

Contact: Plant Supervisor
Address: Chatham Thermal Generating Station
Box 279, Chatham, N.B. E1N 3A6

Phone: 773-3155

Advance Notice: 1 week

Availability: Year round

Cost: None

Special Requirements: None

Preparation:
The films "Power in N.B.", "Progress in Power" and "The Great Search" (elementary level) are available from N.B. Power, Information Services, 527 King Street, Fredericton, N.B. If the school is unable to take a field trip, a guest speaker from Information Services, Fredericton, is available.

Follow-up:
The standard N.B. Power brochures are available at the end of the tour.

Tour Summary:

Students will gain:

a) knowledge of the operation of converting coal and oil into electricity;

b) an appreciation of the technical and environmental advances in the production of electricity;

c) an appreciation of the technology and expertise required to produce electricity.

COLESON COVE GENERATING STATION - N.B. POWER

Description of Site: The Coleson Cove Generating Station, a 1 025 000 kw oil-fired facility situated on the Bay of Fundy, is the largest plant in N.B. Power's system. The programme begins with a slide and tape show describing the history and development of the station followed by a tour of the plant.

Location of Site: Coleson Cove on Route 1

Grade Level: Grades 7 to 12. Recommended for grades 9 to 12.

Tour Length: 1 hour

Size Limitations: 40 maximum. 20 or fewer preferred. Students will be divided into tour groups of 6 to 8.

Supervision Requirements: 1 adult for 20 students

Booking Arrangements:

Contact: Plant Manager/Administrative Manager
Address: P.O. Box 3600, Station B, Saint John, N.B. E2M 4Y2

Phone: 672-1330

Advance Notice: 2 weeks

Availability: Year round, Monday to Friday, 8 a.m. to 4:30 p.m.

Cost: Free

Special Requirements: No high heels

Preparation:
General information brochures and films: "Power in New Brunswick", and "Progress in Power" are available from N.B. Power, Information Services, 527 King Street, Fredericton, N.B. For groups that are unable to make a visit, a film and a guest speaker are available from Information Services, 527 King Street, Fredericton, N.B. E3B 4X1. Phone: 453-4292.

Follow-up:
Brochures are distributed at the beginning of the tour.

Tour Summary:
Students will gain an appreciation of:
a) the technology and expertise required to convert oil into electricity;
b) the variety of employment opportunities in the production of electricity.

COURTENAY BAY GENERATING STATION - N.B. POWER

Description of Site: This thermal generating station has been operating since 1961 and now has a generating capacity of 263 mv. Students have the opportunity to see transformation of oil into electricity and to view the sophisticated control mechanisms of the plant. NOTE: The bigger and more modern Coleson Cove Plant located outside of Saint John, has a slide-tape presentation and more experience with tour groups.

Location of Site: 509 Bayside Drive, Saint John, N.B.

Grade Level: Grades 7 to 12

Tour Length: 1 hour

Size Limitations: 24 maximum. Tours are conducted in groups of 24.

Supervision Requirements: 1 adult for 24 students

Booking Arrangements:

Contact: Plant Manager or Training Officer
Address: 509 Bayside Drive, Saint John, N.B.

Phone: 693-2453

Advance Notice: 2 weeks

Availability: Weekdays, year round, 9:00 a.m. - 5:00 p.m.

Cost: Free

Special Requirements: No high heels. Safety glasses and hard hats provided.

Preparation:

Films: "Power in New Brunswick" and "Progress in Power" are available from N.B. Power, Information Services, 527 King Street, Fredericton, N.B. If a visit is not possible, a guest speaker is available.

Follow-up:

See 'preparation' above.

Tour Summary:

Students will gain an appreciation of:

a) the technology and expertise required to convert oil into electricity;
b) the variety of employment opportunities in the production of electricity.

DALHOUSIE THERMAL GENERATING STATION - N.B. POWER

Description of Site: The Dalhousie station has been in commercial operation since September 21, 1969. Its new (1979) 200 MW addition which is designed to burn Bunker C oil, pulverized coal or a combination of both, has revitalized New Brunswick's coal industry. The plant contains a boiler analog control system and data acquisition computer and passes gases through an electrostatic precipitator. The tour begins with a slide presentation.

Location of Site: Route 134 at the Dalhousie town limits.

Grade Level: Grades 1 to 12

Tour Length: 2 hours

Size Limitations: 30 students maximum

Supervision Requirements: 2 adults for 15 students (Grades 1-6)
1 adult for 30 students (Grades 7-12)

Booking Arrangements:

Contact: Production Manager
Address: N.B. Power Commission
P.O. Box 520, Dalhousie, N.B.

Phone: 684-3387

Advance Notice: 1 week

Availability: Year round (except during periodic maintenance operations)

Cost: Free

Special Requirements: None. Hard hats are supplied.

Preparation:

Films: Power in New Brunswick
Progress in Power
The Great Search (elementary level)

are available from N.B. Power, Information Services, 527 King Street, Fredericton, N.B. If the school is unable to take a field trip, a guest speaker from Information Services, Fredericton, is available.

Follow-up:

Brochures describing N.B. Power's various operations are available at the site.

Tour Summary:

Students will become acquainted with the operation of converting coal and oil energy into electricity. Students will develop an appreciation of the technical and environmental advances in the production of electricity.

GRAND LAKE GENERATION STATION - N.B. POWER

Description of Site: This coal burning plant gets its fuel from Minto to produce 85 mw. Because it is coal burning it requires more equipment and manpower. The tour will include the boilers burning coal, turbines, generators, mechanical department and chemical control department which takes lake water and demineralizes it for the boilers. The site also provides warm water discharge which the Department of Natural Resources utilizes to stimulate fish growth thus creating the basis for an innovative provincial aquaculture facility.

Location of Site: This site is located at Newcastle Creek, 6 km east of Minto on Grand Lake Road.

Grade Level: Grades 1 - 12

Tour Length: 1 hour

Size Limitations: 30

Supervision Requirements: One adult for 30 students

Booking Arrangements:

Contact: Office Supervisor
Address: Grand Lake Generating Station
Box 18, Site 23, Newcastle Creek, N.B.

Phone: 327-6340

Advance Notice: 1 week

Availability: Year round although September is not recommended.

Cost: Free

Special Requirements: None. Hard hats and safety glasses will be provided.

Preparation:
The films "Power in N.B.", "Progress in Power" and "The Great Search" (elementary level) are available from N.B. Power, Information Services, 527 King Street, Fredericton, N.B. If the school is unable to take a field trip, a guest speaker from Information Services, Fredericton, is available.

Follow-up:
The standard N.B. Power brochures are available at the end of the tour.

Tour Summary:

Students will gain:

a) knowledge of the operation of converting coal into electricity;
b) an appreciation of the technical and environmental advances in the production of electricity;
c) an appreciation of the technology and expertise required to produce electricity.

GRAND MANAN DIESEL GENERATING STATION - N.B. POWER

Description of Site: The Grand Manan Diesel Generating Station has a possible output of 4000 kw from 5 generators. Since 1979 it has been operating only as standby although it runs one day a month as an exercise day. It runs on diesel obtained from Irving Refineries in Saint John. The tour will include the plant facilities, engine room, workshop and office area.

Location of Site: This site is located at Ingalls Head, Grand Manan, N.B.

Grade Level: Grades 1 - 12

Tour Length: One-half hour

Size Limitations: 60

Supervision Requirements: One adult for 20 students

Booking Arrangements:

Contact: Plant Supervisor
Address: Grand Manan Diesel Generating Station
Grand Manan, N.B.

Phone: 662-8466

Advance Notice: 1 week

Availability: Year round; operates 1 day per month

Cost: Free

Special Requirements: None

Preparation:
The films "Power in N.B.", "Progress in Power" and "The Great Search" (elementary level) are available from N.B. Power, Information Services, 527 King Street, Fredericton, N.B. If the school is unable to take a field trip, a guest speaker from Information Services, Fredericton, is available.

Follow-up:
The standard N.B. Power brochures are available at the end of the tour.

Tour Summary:

Students will gain:

a) knowledge of the operation of converting diesel into electricity;
b) an appreciation of the technical and environmental advances in the production of electricity;
c) an appreciation of the technology and expertise required to produce electricity.

IRVING OIL LIMITED - REFINING DIVISION

Description of Site: This is the largest refinery in Canada. The tour highlights include a slide show, discussion of products, and a tour of the plant.

Location of Site: Loch Lommand Road, Saint John

Grade Level: High schools and university

Tour Length: 2 hours

Size Limitations: (tour of site is by bus)

Supervision Requirements: Minimum of one responsible adult per tour group

Booking Arrangements:

Contact: Irving Oil Limited - Refining Division
Address: P.O. Box 1260, Saint John, N.B. E2L 4H6

Phone: 657-7710

Advance Notice: 1 week minimum

Availability: Monday to Friday, year round

Cost: Free

Special Requirements: A bus must be provided for the tour.

Tour Summary:
Visiting this site will permit a student to see samples of the products and by-products of a refinery and gain:

a) an understanding of how oil is refined;
b) an appreciation of the technology and expertise required to process oil;
c) an awareness of the need for trained and qualified staff in a highly technological society.

MILLTOWN GENERATING STATION - N.B. POWER

Description of Site: This is N.B. Power's smallest generating station (3.8 mw). Because it is not as modern as most other plants in N.B. it requires more manual operation. Thus, the students can get a better idea of how electricity is made. The tour will include a short talk on the history of the generating station, the oldest rope drive unit in Eastern Canada (a pulley and rope system which turns the generator), step by step process of making electricity, and a visit to fishway.

Location of Site: This site is located on Mill Lane in St. Stephen, N.B.

Grade Level: Grades 1 - 12

Tour Length: 1 hour

Size Limitations: 30-35

Supervision Requirements: One adult for 15 students

Booking Arrangements:

Contact: Plant Supervisor
Address: Milltown Generating Station
P.O. Box 336, St. Stephen, N.B. E3L 2X2

Phone: 466-5411

Advance Notice: 1 week

Availability: All year except late March to late May

Cost: None

Special Requirements: No high heels

Preparation:
The films "Power in N.B.", "Progress in Power" and "The Great Search" (elementary level) are available from N.B. Power Information Services, 527 King Street, Fredericton, N.B. If the school is unable to take a field trip a guest speaker from Information Services, Fredericton, is available.

Follow-up:
The standard N.B. Power brochures are available at the end of the tour.

Tour Summary:

Students will gain:

a) knowledge of the process of making electricity;
b) an appreciation of the technical and environmental advances in the production of electricity;
c) an appreciation of the technology and expertise required to produce electricity.

NEW BRUNSWICK COAL COMPANY

Description of Site: Minto is the oldest mining community in North America. New Brunswick Coal Company operates seven strip mines (open cast) within a 64 km radius producing 600,000 tons of coal per year. Tour highlights include the company's largest operation and the slag heaps reforested with Scotch pine.

Location of Site: Tours start from the head office which is located in the Industrial Park in Minto.

Grade Level: Grades 1 to 12

Tour Length: 2 hours

Size Limitations: 65 students

Supervision Requirements: 1 adult for 30 students

Booking Arrangements:

Contact: Mine Manager
Address: P.O. Box 520, Minto, N.B.

Phone: 327-3336

Advance Notice: 1 week

Availability: Year round, 9 a.m. to 3:30 p.m. Mornings preferred. Mines are very muddy during Spring thaw.

Cost: Free

Special Requirements: Rubber boots

Preparation:
Enquire for specific information when booking a tour.

Follow-up:
See 'preparation' above.

Tour Summary:
Students will gain a knowledge of:
a) the technology involved in mine operation;
b) advanced mine machinery;
c) coal analysis;
d) land reclamation.

POINT LEPREAU GENERATION STATION - N.B. POWER

Description of Site: The Point Lepreau Generating Station, which began commercial operation in 1982, will be the first nuclear-powered electric generating station in the Atlantic Provinces. Its power will be derived from a CANDU (CANada Deuterium Uranium) reactor which will be the first CANDU in Canada to be cooled by sea water. Tour highlights include an introductory talk, a 15-minute film and 45-minute bus tour of the site.

Location of Site: Point Lepreau Road off Route No. 1 approximately 40 km southwest of Saint John.

Grade Level: Grades 1 to 12

Tour Length: 1½ hours

Size Limitations: 30 students

Supervision Requirements: 2 adults for a bus load

Booking Arrangements:

Contact: Public Affairs Officer
Address: Public Affairs Department, Point Lepreau
P.O. Box 10, Lepreau, New Brunswick

Phone: 659-2220

Advance Notice: 2 weeks

Availability: Between the Victoria Day weekend and Labour Day, tours are run on the hour, 10 a.m. to 5 p.m. daily. During winter, tours can be arranged on weekdays between 8 a.m. and 4:30 p.m.

Cost: Free

Special Requirements: Groups exceeding 12 in number are requested to provide their own bus. There are no restaurant or cafeteria facilities available. However, picnic tables are available in good weather.

Preparation:

Information kits can be requested in advance for class preparation or picked up at the tour's conclusion. Films "Power from the Atom" and "Nuclear Age" are available from N.B. Power, Information Services, 527 King Street, Fredericton, N.B. The National Film Board Offices (Moncton and Saint John) carry a selection of films with different views of nuclear power.

Follow-up:

See 'preparation' above.

Tour Summary:

Elementary students will gain a knowledge of:

a) what electricity is;
b) various methods of producing electricity via an animated film: "The Great Search";
c) be shown one method of producing electricity.

High school students will gain a more in-depth knowledge of:

a) the functioning of a nuclear power plant;
b) the operation of a CANDU reactor via the film "Power from the Atom";
c) the safety features of a nuclear power plant.

New Brunswick

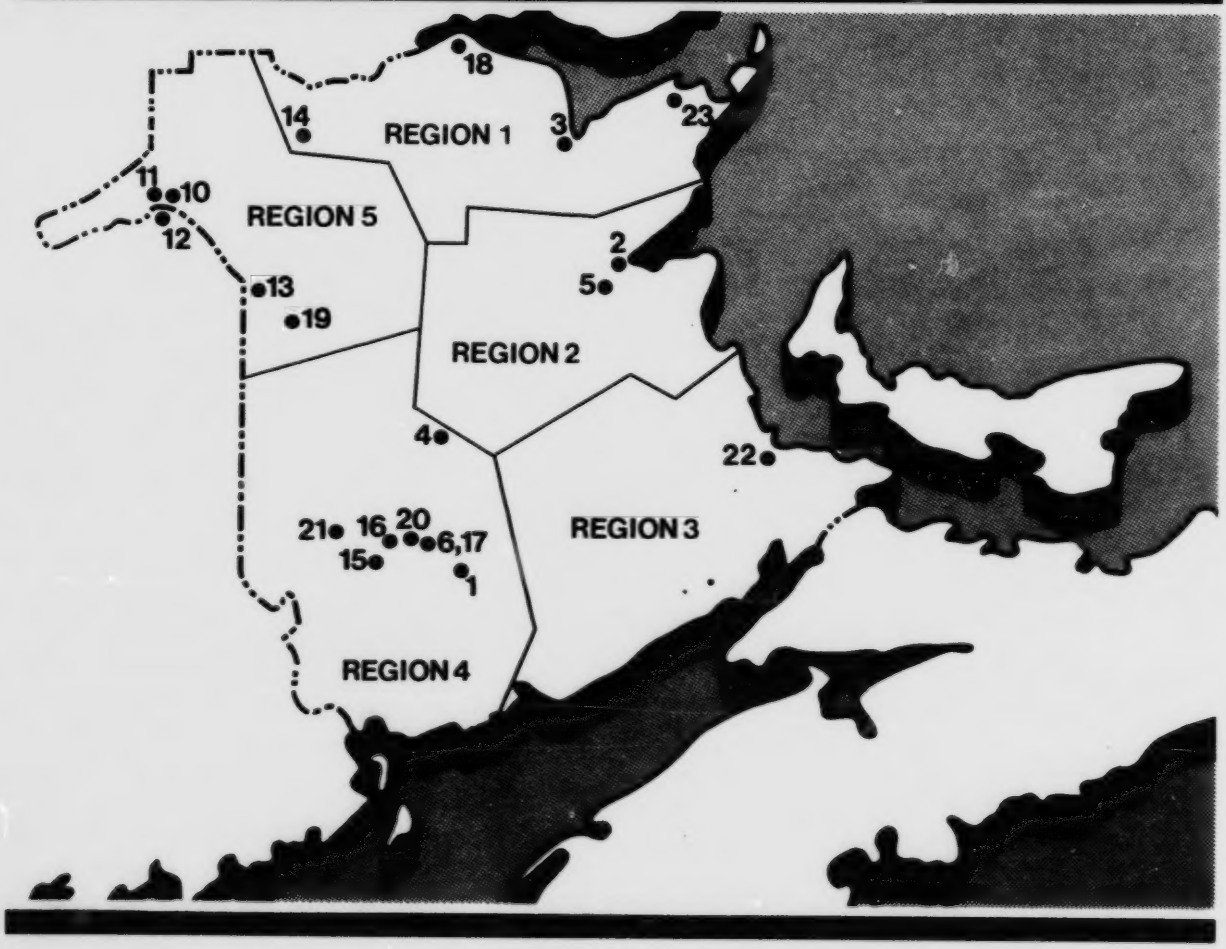
Renewable Sites

1. Acadia Forest Experiment Station
2. Acadia Forest Products Limited
3. Bathurst District Complex
4. Beechwood Generating Station
5. Boise Cascade Canada Limited
6. Conserver House
7. Department of Natural Resources, Region I
8. Department of Natural Resources, Region II
9. Department of Natural Resources, Region V
10. Edmundston Mill
11. Fraser Forest Tree Nursery
12. Fraser Paper Limited
13. Grand Falls Generating Station
14. Kedgwick Saw Mill
15. King's Landing Historical Settlement
16. Mactaquac Generating Station
17. Maritime Forest Research Centre
18. NBIP Limited
19. Plaster Rock Saw Mill
20. Provincial Forest Nursery
21. St. Anne-Nackawic Pulp and Paper Company
22. Shediac District Office
23. Village Historique Acadian

Nouveau-Brunswick

Installations à Energie Renouvelable

1. *Station d'expérimentation forestière Acadia*
2. *Acadia Forest Products Limited*
3. *Complexe du district de Bathurst*
4. *Centrale de Beechwood*
5. *Boise Cascade Canada Limited*
6. *Maison de l'Econome*
7. *Ministère des ressources naturelles, Région I*
8. *Ministère des ressources naturelles, Région II*
9. *Ministère des ressources naturelles, Région V*
10. *Usine d'Edmundston*
11. *Pépinière forestière Fraser*
12. *Papeterie Fraser Limited*
13. *Centrale de Grand Falls*
14. *Scierie de Kedgwick*
15. *Village historique de Kings Landing*
16. *Centrale de Mactaquac*
17. *Centre de recherches forestières des Maritimes*
18. *NBIP Limited*
19. *Scierie de Plaster Rock*
20. *Pépinière forestière provinciale*
21. *St. Anne-Nackawic Pulp and Paper Company*
22. *Bureau du district de Shediac*
23. *Village historique acadien*



NEW BRUNSWICK: RENEWABLE SITES

1.	Acadia Forest Experiment Station	Biomass
2.	Acadia Forest Products Limited	Biomass
3.	Bathurst District Complex	Solar
4.	Beechwood Generating Station	Hydro
5.	Boise Cascade Canada Limited	Biomass
6.	Conserver House	Conservation
7.	Department of Natural Resources ... Region I	Biomass
8.	Department of Natural Resources ... Region II	Biomass
9.	Department of Natural Resources ... Region V	Biomass
10.	Edmundston Mill	Biomass
11.	Fraser Forest Tree Nursery	Biomass
12.	Fraser Paper Limited	Biomass
13.	Grand Falls Generating Station	Hydro
14.	Kedgwick Saw Mill	Biomass
15.	King's Landing Historical Settlement	Renewable
16.	Mactaquac Generating Station	Hydro
17.	Maritime Forest Research Centre	Biomass
18.	NBIP Limited	Biomass
19.	Plaster Rock Saw Mill	Biomass
20.	Provincial Forest Nursery	Biomass
21.	St. Anne-Nackawic Pulp and Paper Company	Biomass
22.	Shediac District Office	Solar and Wind
23.	Village Historique Acadian	Renewable

ACADIA FOREST EXPERIMENT STATION

Description of Site: This is a sub-station of the Maritimes Forest Research Centre. The tour will include the various activities occurring at the station - grafting, fertilizing, planting, cross-pollination and thinning. As well, the students will observe the trees at various stages of growth from seedlings to mature trees.

Location of Site: This site is located 22 km outside of Fredericton on Highway 10 to Minto.

Grade Level: Grades 6 - 12

Tour Length: 2 hours

Size Limitations: 30

Supervision Requirements: One adult for 15 students

Booking Arrangements:

Contact: Information Office
Address: Maritimes Forest Research Center
P.O. Box 4000, Fredericton, N.B. E3B 5P7

Phone: 452-3571

Advance Notice: 2 weeks

Availability: May - September

Cost: Free

Special Requirements: The students should wear clothing and footwear appropriate for outdoor walking.

Preparation:
Maritimes Forest Research Center has resource persons available to visit the schools. Numerous brochures and teaching aids are also available.

Follow-up:
See preparation.

Tour Summary:

The students should gain:

a) an appreciation of the importance of the forests to the economy of N.B.;
b) an awareness of the importance of forestry management;
c) an understanding of the labour and time involved in the various phases of growing trees;
d) a realization that trees, like all crops, must be tended properly to reach peak yields.

ACADIA FOREST PRODUCTS LTD.

Description of Site: This is a ground wood pulp mill with three main buildings - a steam plant, wood room and main mill. The mill takes pulp and processes it into ground wood pulp which is shipped to other mills to be used as an ingredient in making newsprint. The students will follow the wood from the trucks through the various phases until the ground wood pulp is ready to be shipped. Special emphasis will be placed on the burning of hog fuel for energy.

Location of Site: This site is located about 16 km south of Chatham on Route 126 at Nelson-Miramichi.

Grade Level: Grades 3 - 12

Tour Length: 1-1½ hours

Size Limitations: 30

Supervision Requirements: 1 adult for 6 students

Booking Arrangements:

Contact: Safety and Security Co-ordinator
Address: Acadia Forest Products Ltd.
P.O. Box 280, Nelson-Miramichi, N.B.

Phone: 622-3520

Advance Notice: 2 weeks. Call one day ahead.

Availability: Year round

Cost: Free

Special Requirements: Flat footwear and slacks or jeans must be worn. No dresses.

Preparation:
None.

Follow-up:
Booklet on operation of the plant is available at end of tour.

Tour Summary:

Students will gain:

a) an understanding of the intricate procedures and machinery used in the making of ground wood pulp;
b) an appreciation of the importance of the forests in the economy of N.B.;
c) an awareness of the need to use every part of the tree;
d) a knowledge of the growing importance of hog fuel as a source of energy.

BATHURST DISTRICT COMPLEX - N.B. POWER

Description of Site: The complex contains a garage and storage area that are heated by an active solar system.

Location of Site: Vanier Blvd. just north of the bypass, Bathurst.

Grade Level: Recommended for grades 5 and older.

Tour Length: 3/4 hour

Size Limitations: 35 maximum

Supervision Requirements: 1 adult for 35 students

Booking Arrangements:

Contact: District Supervisor
Address: N.B. Power Cmmission
Drawer H, 280 King St., Bathurst, N.B.

Phone: 546-3327

Advance Notice: 2 weeks

Availability: Year round

Cost: Free

Special Requirements: None

Preparation:
None. If the school is unable to take a field trip, a guest speaker from Information Services, Fredericton, is available.

Follow-up:
Brochures available upon request.

Tour Summary:
Students will gain a knowledge of:
a) active solar heating, and
b) sophisticated monitoring systems.

BEECHWOOD GENERATING STATION - N.B. POWER

Description of Site: The Beechwood Generating Station is a 115,000 kw hydroelectric development on the Saint John River. Tour highlights include the control room, fishway and floral clock.

Location of Site: 160 kilometres north of Fredericton on Route 105

Grade Level: Grades 1 to 12

Tour Length: ½ hour

Size Limitations: 60 maximum

Supervision Requirements: 1 adult for 10 students (grades 1-6)
1 adult for 20 students (grades 7-12)

Booking Arrangements:

Contact: Tour Guide/General Maintenance Supervisor
Address: N.B. Power
Beechwood Plant
Beechwood, N.B. E0J 1E0

Phone: 278-3291

Advance Notice: 1 week

Availability: Year round, weekdays 9:00 a.m. to 4:00 p.m.

Cost: Free

Special Requirements: None

Preparation:
Films: "Power in New Brunswick" and "Progress in Power" and for elementary students, "The Great Search", are available from N.B. Power, Information Services, 527 King Street, Fredericton, N.B. For groups unable to tour, a guest speaker is available.

Follow-up:
Brochures about the Beechwood Station are available at the site.

Tour Summary:
Students will gain a knowledge of:
a) the technology and expertise needed to operate a hydroelectric plant;
b) the environmental impact of energy development.

BOISE CASCADE CANADA LTD.

Description of Site: Boise Cascade is a member of a 17-plant corporation. Of the three Canadian members, the other two are in Ontario. Boise Cascade manufactures chemical kraft pulp which is used in the making of newspaper. The students will follow the tree from the debarker through the various stages whereby it is made into pulp. Special emphasis will be placed on the burning of hog fuel for energy.

Location of Site: This site is located on Curtis Road off the west end of King George Highway in Newcastle.

Grade Level: Grades 11-12

Tour Length: 1½ hours

Size Limitations: 50

Supervision Requirements: 1 adult for 25 students

Booking Arrangements:

Contact: Manager, Human Resources
Address: Boise Cascade Canada Ltd.
P.O. Box 1020, Newcastle, N.B. E1V 3M8

Phone: 622-2250

Advance Notice: 10 days

Availability: Seasonal

Cost: Free

Special Requirements: As part of the tour will be out-of-doors, walking shoes should be worn. Hard hats will be provided.

Preparation:
None.

Follow-up:
Pamphlets on plant's operation are available at the end of the tour.

Tour Summary:

Students should gain:

a) an understanding of the intricate procedures and machinery used in the making of kraft pulp;
b) an appreciation of N.B. forest's key role in the economy of the province;
c) an awareness of the need to use every part of the tree;
d) a knowledge of the growing importance of hog fuel as a source of energy.

CONSERVER HOUSE

Description of Site: In downtown Fredericton, a century old house has been converted into a community-based demonstration centre for energy conservation and renewable energy technologies. It is designed to help you cut your fuel bills, choose an efficient heating system and find real solutions to your energy problems.

Location of Site: 180 Saint John Street, Fredericton, N.B.

Grade Level: Grades 10 - 12

Tour Length: ½ hour

Size Limitations: 15

Supervision Requirements: One adult for 15 students

Booking Arrangements:

Contact: Mr. Richard Lecours
Address: Conservation Council of N.B.
Conserver House
180 Saint John Street
Fredericton, N.B.
E3B 4A9

Phone: 454-7655

Advance Notice: 1 week (preferably)

Availability: Year long

Cost: Free

Preparation:
Numerous brochures and fact sheets available.

Follow-up:
None

Tour Summary:
To gain an understanding of heat loss in homes and learn easy ways of conserving energy in their own homes. Material oriented toward educators in energy conservation will be made available.

DEPARTMENT OF NATURAL RESOURCES REGION I

Description of Site: This site includes numerous forestry projects - thinning, site preparation, planting, harvesting and site improving. Students will also see the machinery and equipment necessary for each of these projects.

Location of Site: This site goes from Kedgwick, east to the coast, and south to Bathurst and the Christmas mountains.

Grade Level: Grades 6 - 12

Tour Length: 1 day

Size Limitations: 50-60

Supervision Requirements: One adult for 15 students

Booking Arrangements:

Contact: Regional Resource Manager
Address: Dept. of Natural Resources Region 1
Box 170, Bathurst, N.B. E2A 3Z2

Phone: 546-6611

Advance Notice: 1 week. Timing requires consultation with all concerned (District Rangers and school authorities).

Availability: Late May - October

Cost: Free

Special Requirements: Appropriate clothing and footwear for walking outdoors must be worn. A bus prepared to transport students on bush roads is necessary. Also, the students are to provide their own lunches.

Preparation:
Resource persons are available to visit the schools to discuss various aspects of forestry management.

Follow-up:
See "Preparation".

Tour Summary:

Students should gain:

a) an awareness of the importance of forestry management;
b) the ability to recognize various trees;
c) an appreciation of the numerous processes involved in forestry management;
d) a realization that trees, like all crops, must be tended properly to reach peak yields.

DEPARTMENT OF NATURAL RESOURCES REGION II

Description of Site: This site includes numerous forestry projects - thinning, site preparation, planting, harvesting and site improving. Students will also see the equipment and machinery necessary for each of these projects.

Location of Site: This site includes almost all of Northumberland County, south to McGiveny, east to Salmon River and west to Boiestown.

Grade Level: Grades 4 - 12

Tour Length: 1 day (depending on the number of sites visited)

Size Limitations: 50-60

Supervision Requirements: One adult for 15 students

Booking Arrangements:

Contact: Staff Ranger
Address: Dept. of Natural Resources
80 Pleasant Street, Newcastle, N.B. E1V 1X7

Phone: 622-2636

Advance Notice: 2 weeks

Availability: May - October

Cost: Free

Special Requirements: Appropriate clothing and footwear for walking outdoors must be worn. A bus must be prepared to transport students on bush roads. Also, the students are to provide their own lunches.

Preparation:
Resource persons are available to visit the schools to discuss various aspects of forestry management.

Follow-up:
See "Preparation".

Tour Summary:
Students should gain:
a) an awareness of the importance of forestry management;
b) the ability to recognize various trees;
c) an appreciation of the numerous processes involved in forestry management;
d) a realization that trees, like all crops, must be tended properly to reach peak yields.

DEPARTMENT OF NATURAL RESOURCES REGION V

Description of Site: This site contains approximately 2 million acres. Various projects such as thinning, site preparation, planting, harvesting and stand improvement will be available for touring. As well, fish and wildlife could be observed.

Location of Site: This site covers Madawaska and Victoria counties, the North West portion of Restigouche County as well as a small western part of Northumberland.

Grade Level: Grades 7 - 12

Tour Length: Up to one full day, depending on the number of sites visited.

Size Limitations: 30-35

Supervision Requirements: 1 adult for 15 students.

Booking Arrangements:

Contact: Extension Forester
Address: Dept. of Natural Resources
Box 398, Edmundston, N.B. E3V 3L1

Phone: 735-4751

Advance Notice: 3 weeks

Availability: June - October, effective 1983

Cost: Free

Special Requirements: Clothing and footwear appropriate for outdoor walking is necessary. A bus is needed to transport students from site to site.

Preparation:
Personnel is available to go to the schools to discuss various aspects of forestry management. Filmstrips and slides are also available.

Follow-up:
See "Preparation".

Tour Summary:
Students should gain:
a) an appreciation of the numerous processes involved in forestry management;
b) the ability to recognize various trees;
c) an awareness of the importance of forestry management.

EDMUNDSTON MILL - FRASER INC.

Description of Site: Fraser Inc. is the largest forest industry complex in N.B. The Edmundston mill is actually 3 interconnecting mills each sharing common log preparation and power generating facilities, and each manufacturing a different product. The bi-sulphite mill produces bleached and unbleached bi-sulphite pulp, the groundwood mill produces groundwood pulp and the boxboard mill produces boxboard.

The tour will include washing and screening department, MgO recovery system (in which spent cooking liquor is no longer sewered but burned as fuel), woodroom, power house, bi-sulphite mill, groundwood mill and boxboard mill.

Location of Site: The main office is on Rice Street in Edmundston, on the banks of the Madawaska River.

Grade Level: Grades 5 - 12

Tour Length: 1-2 hours

Size Limitations: 30-35 students

Supervision Requirements: 1 adult for 30 students

Booking Arrangements:

Contact: Personnel Department
Address: Fraser Inc.
Rice Street, Edmundston, N.B. E3V 1S9

Phone: 735-5551 Ext. 313

Advance Notice: 2 weeks

Availability: May - September

Cost: Free

Special Requirements: Prescribed safety equipment must be worn by all visitors.

Preparation: None.

Follow-up:
Booklets on the operation of the mill are available at the end of the tour.

Tour Summary:

Students should gain:

a) an understanding of the intricate procedures and equipment used in the manufacture of bi-sulphite pulp, groundwood pulp and boxboard;

b) an appreciation of the importance of the forests to the economy of New Brunswick;

c) a realization of the need for energy conservation;

d) a knowledge of recycling wastes.

FRASER FOREST TREE NURSERY - FRASER INC.

Description of Site: Part of the Fraser Inc., this nursery is the largest privately-owned container stock tree nursery in Canada. The tour includes greenhouses, irrigation system, fertilizing system as well as the sites themselves. All visitors are invited to take in an adjacent self-guiding nature trail.

Location of Site: This nursery is located on a 16 hectare site at Second Falls in Madawaska County, 11 km from Edmundston.

Grade Level: Grades 5 - 12

Tour Length: 1-2 hours

Size Limitations: 25-35 students

Supervision Requirements: 1 adult for 30 students

Booking Arrangements:

Contact: Tour Guide - Fraser Tree Nursery
Address: Fraser Inc.
Second Falls, N.B. E0L 1L0

Phone: 739-9092

Advance Notice: 2 weeks

Availability: May - September

Cost: None

Special Requirements: Clothing and footwear appropriate for walking outdoors should be worn.

Preparation:
The tour begins with a 15-minute slide presentation.

Follow-up:
Pamphlets on the nursery and adjacent nature trail are available. As well, Fraser Inc. offers tours to their pulp mill, saw mills and paper mill.

Tour Summary:

The students should gain:

a) an appreciation of the importance of the forests to the N.B. economy;
b) an awareness of the importance of forestry management;
c) an understanding of the labour and time involved in the various phases of growing trees;
d) a realization that trees, like all crops, must be tended properly to reach peak yields.

FRASER PAPER LTD. - FRASER INC.

Description of Site: A wholly-owned subsidiary of Fraser Inc. of Edmundston and a member of the Noranda group, Fraser Paper originated in 1925 and manufactures in excess of 400,000 metric tons of paper annually. It presently consists of 2 large mills and eight paper machines.

The tour will include the many processes used in the production of fine and groundwood papers from the pulp (which comes from the Edmundston pulp mill) to the finishing and shipping.

Location of Site: Fraser Paper Ltd. is located in Madawaska, Maine on Bridge Street directly beyond the U.S. Customs. This is across the river from Edmundston.

Grade Level: Grades 5 - 12

Tour Length: 1-1½ hours

Size Limitations: 30-35 students

Supervision Requirements: 1 adult for 30 students

Booking Arrangements:

Contact: Personnel Department
Address: Fraser Paper Ltd.
Madawaska, Maine

Phone: 207-728-3321 Local 213

Advance Notice: 2 weeks

Availability: Year round

Cost: Free

Special Requirements: Prescribed safety equipment must be worn.

Preparation:
Fraser Inc. offers a tour of its Edmundston mill which makes the pulp from which the paper is made.

Follow-up:
Pamphlets describing the plant's operation are available at the end of the tour.

Tour Summary:

Students should gain:

a) an understanding of the intricate procedures and equipment used in the manufacture of paper;

b) a realization of the need for energy conservation.

GRAND FALLS GENERATING STATION - N.B. POWER

Description of Site: The Grand Falls Generating Station has an output of 60,000 kw in 4 units of 15,000 each. It is separated from the dam and intake by a tunnel which goes under the town. The tour will include the intake and dam, powerhouse (turbines and generators) control room and switch yard.

Location of Site: Grand Falls, N.B.

Grade Level: Grades 1 -12

Tour Length: ½-1 hour

Size Limitations: 20

Supervision Requirements: Grades 1-6, one adult for 15 students; grades 7-12, one adult for 20 students.

Booking Arrangements:

Contact: Operation Superintendent
Address: Grand Falls Plant
Box 1260, Grand Falls, N.B.

Phone: 473-2876

Advance Notice: 1 week

Availability: Year round

Cost: Free

Special Requirements: No high heels.

Preparation:

The films "Power in N.B.", "Progress in Power" and "The Great Search" (elementary level) are available from N.B. Power, Information Services, 527 King Street, Fredericton, N.B. If the school is unable to take a field trip, a guest speaker from Information Services, Fredericton, is available.

Follow-up:

The standard N.B. Power brochures are available at the end of the tour.

Tour Summary:

Students will gain:

a) knowledge of the operation of converting water into electricity;
b) an appreciation of the technical and environmental advances in the production of electricity;
c) an appreciation of the technology and expertise required to produce electricity.

KEDGWICK SAW MILL - FRASER INC.

Description of Site: As a member of Fraser Inc., N.B.'s largest forest industry complex, the Kedgwick saw mill, together with the Plaster Rock saw mill, produces more than 90 million board feet a year. Almost entirely energy self-sufficient, they use no oil but some electricity. The total tree is used - the chips from the smaller logs go to the pulp mill and the sawdust and wood waste are burned to heat the production areas and the kilns to dry the lumber. The tour would follow the logs through the various phases to the final shipping process.

Location of Site: This site is located 80 km. from Campbellton on the highway between St. Leonard and Campbellton.

Grade Level: Grades 5 - 12

Tour Length: 1-2 hours

Size Limitations: 30-35 students

Supervision Requirements: 1 adult for 30 students

Booking Arrangements:

Contact: Mill Manager
Address: Fraser Inc.
Kedgwick, N.B.

Phone: 284-2950

Advance Notice: 2 weeks

Availability: Year round

Cost: Free

Special Requirements: Boots, appropriate casual wear; hard hats supplied.

Preparation:
None

Follow-up:
Booklets on the operation of the mill are available at the end of the tour.

Tour Summary:

Students should gain:

a) an understanding of the numerous processes and equipment used in a modern saw mill;
b) an appreciation of the importance of the forests to New Brunswick's economy;
c) a realization of the need to use the complete tree;
d) an awareness of the importance of energy self-sufficient industry.

KINGS LANDING HISTORICAL SETTLEMENT

Description of Site: The village was developed to save selected buildings that were endangered by the construction of the Mactaquac Dam. These have been put together based upon extensive landscape and restoration work. The costumed staff demonstrates how the early settlers survived without our present energy servants.

Location of Site: Trans Canada, approximately 20 km north of Fredericton.

Grade Level: Grades 1 - 12; recommended for grades 5 - 12. Each grade has a programme designed for it.

Tour Length: 1½ to 2 hours

Size Limitations: Any number during June. Up to 90 in October to December.

Supervision Requirements: 1 adult for every 10 to 15 students

Booking Arrangements:

Contact: Tour Coordinator
Address: Kings Landing Corporation
P.O. Box 522, Fredericton, N.B. E3B 5R5

Phone: 363-3081

Advance Notice: Bookings taken in mid-September for October to December. June bookings are taken in May. Allow extra preparation time for large groups or those with special requirements, such as French-speaking guides.

Availability: Year round

Cost: $ .50 for a regular visit. $2.50 for an activity-oriented visit. Supervisors are admitted free of charge.

Special Requirements: Groups using parents as chaperones are asked to request that parents not bring their pre-schoolers along.

Preparation:
Special programmes can be arranged with the Education Officer at Kings Landing. Pre-trip suggestions are also sent along with the confirmation letter that is sent out.

Follow-up:
An evaluation is done at the end of each visit. Follow-up information can be sent along to classes asking for more information.

Tour Summary:

Visiting this site will help students gain:

a) an understanding of how N.B.'s early settlers coped with a limited range of energy sources;
b) an appreciation of how much can be accomplished without our high energy consumption;
c) an awareness of the hardship of pioneer life and the inventiveness of people who improved their lifestyle;
d) the opportunity to see, first hand, energy generation and conservation.

MACTAQUAC GENERATING STATION - N.B. POWER

Description of Site: The hydroelectric generating station near Fredericton has six units with a total capacity of 600 mw with an impressive dam 54 m high and 510 m long. The tour highlights include the actual generator and wheel pit area, the fish way operation and the electrical museum.

Location of Site: The station is located 19 km above Fredericton (along the Trans Canada Highway) on the Saint John River.

Grade Level: Grades 1 to 12

Tour Length: ½ hour

Size Limitations: 20 maximum

Supervision Requirements: 1 adult for 20 students

Booking Arrangements:

Contact: Security Supervisor and Public Relations
Address: Mactaquac Generating Station
Mouth of Keswick, Mactaquac, N.B.

Phone: 363-3071

Advance Notice: 1 week

Availability: September to May, Monday to Friday, 8:30 a.m. to 4:30 p.m. May 15 to August 31, every day 9:00 a.m. to 4:30 p.m. Last tour of the day starts at 4:30 p.m.

Cost: Free

Special Requirements: None

Preparation:

Films: Power in New Brunswick
Progress in Power
The Great Search (elementary level)
are available from N.B. Power, Information Services, 527 King Street, Fredericton, N.B.

If the school is unable to take a field trip, a guest speaker from Information Services, Fredericton, is available.

Follow-up:

Pamphlet - "Mactaquac" is available on site. A tour of the nearby fish hatchery may be desirable. Contact Mactaquac Fish Culture Station, 363-3021. Hours: 8:00 a.m. - 5:00 p.m.

Tour Summary:

Students will gain a knowledge of:

a) how hydro-electricity is produced;
b) the distribution system;
c) the technology and expertise required to produce electricity;
d) the environmental impacts of hydro-electric production.

MARITIME FOREST RESEARCH CENTER

Description of Site: This centre is the Maritime office of Canadian Forestry Service, Environment Canada. Resource persons are available at the office to speak to groups, or they will go to the schools to speak on various subjects concerning our province's forests.

Location of Site: This site is located up the hill from the gym on the University of New Brunswick Campus in Fredericton.

Grade Level: Grades 6 - 12

Tour Length: 1 hour

Size Limitations: 30

Supervision Requirements: 1 adult for 30 students

Booking Arrangements:

Contact: Information Office
Address: Maritime Forest Research Center
P.O. Box 4000, Fredericton, N.B. E3B 5P7

Phone: 452-3571

Advance Notice: 2 weeks

Availability: The office is available year round.

Cost: Free

Special Requirements: None

Preparation:
The Acadia Forest Experiment Station, a sub station of Maritimes Forest Research Station, is available for tours. Numerous brochures and teaching kits are available on request.

Follow-up:
See "preparation".

Tour Summary:
Students should gain:
a) a knowledge of forest insects and diseases;
b) an appreciation of the numerous products from N.B. forests;
c) an awareness of some current research projects designed to maintain and improve our forests.

NBIP LIMITED

Description of Site: NBIP produces newsprint. The tour will include the many processes used in the making of paper from the beginning when the wood arrives until the newsprint is complete. The company is presently burning bark (displacing 25 kl of oil daily). By 1982 it will have one of the largest wood-fired boilers in Atlantic Canada, providing a saving of 13,000 kl of oil annually.

Location of Site: This site is located on William Street, which is the main street in Dalhousie, N.B.

Grade Level: Grades 7 - 12

Tour Length: 1 hour

Size Limitations: 60-70 students

Supervision Requirements: 1 adult for 10 students

Booking Arrangements:

Contact: Safety Supervisor
Address: N.B.I.P. Limited
William St., Dalhousie, N.B.

Phone: 684-2777

Advance Notice: 1 week

Availability: Year round. (At time of printing all mill tours have been suspended until further notice due to the modernization program.)

Cost: Free

Special Requirements:

Preparation:
None

Follow-up:
Brochures on the company's operation are available at the end of the tour.

Tour Summary:

Students should gain:

a) an understanding of the intricate procedures and equipment used in the manufacture of paper;
b) an appreciation of the importance of the forests to the economy of N.B.;
c) an awareness of the need to use every part of the tree;
d) a knowledge of the growing importance of hog fuel as an integral source of energy.

PLASTER ROCK SAW MILL - FRASER INC.

Description of Site: As a member of Fraser Inc., N.B.'s largest forest industry comples, the Plaster Rock saw mill, together with the Kedgwick saw mill produces more than 90 million board feet a year. Almost entirely self sufficient, they use no oil but do use some purchased electricity. The total tree is used - the chips from the smaller logs go to the pulp mill and wood waste and the sawdust are burned to heat the production plants and the kilns to dry the lumber. The tour would follow the logs through the various phases to the final shipping process.

Location of Site: This site is located at the western end of the Renous-Plaster Rock Highway. The mill is on a hill with a sign visible from highway.

Grade Level: Grades 5 - 12

Tour Length: 1 - 2 hours

Size Limitations: 30 students

Supervision Requirements: 1 adult for 30 students

Booking Arrangements:

Contact: Mill Manager
Address: Fraser Inc.
Plaster Rock, N.B.

Phone: 356-2617

Advance Notice: 1 - 2 weeks

Availability: Year round

Cost: Free

Special Requirements: Wear appropriate clothing--boots, casual dress; hard hats supplied.

Preparation:
None

Follow-up:
Booklets on the operation of the mill are available at the end of the tour.

Tour Summary:

Students should gain:

a) an understanding of the processes and equipment used in a modern saw mill;
b) an appreciation of the importance of the forests to the economy of N.B.;
c) a realization of the need to use the entire tree;
d) an awareness of the importance of devising energy self-sufficient industry.

PROVINCIAL FOREST NURSERY

Description of Site: The publicly-owned nursery covers hundreds of acres. Trip highlights include a tour of part of the 70 cultivated acres and visits to some of the 25 greenhouses.

Location of Site: 10 km west of Fredericton on the Trans Canada.

Grade Level: Grades 6 to 12. (Younger children may visit the site but do not benefit greatly from the tour.)

Tour Length: 1 hour

Size Limitations: 35 students maximum

Supervision Requirements: 1 adult for 35 students

Booking Arrangements:

Contact: Secretary
Address: Provincial Forest Nursery
R. R. 6, Fredericton, N.B. E3B 4X7

Phone: 455-6989

Advance Notice: 1 week

Availability: Monday to Friday. June is recommended. Little to see outside of greenhouses in cold weather. No tours in May.

Cost: Free

Special Requirements: Appropriate footwear for walking on plowed ground.

Preparation:
None

Follow-up:
None at present. A brochure will be made available if tour demand warrants it.

Tour Summary:
A tour of this site will help students gain:
a) a respect for renewable natural resources;
b) an impression of the scope of provincial reforestation;
c) an ability to recognize species of young trees;
d) a knowledge of the production of young trees.

ST. ANNE-NACKAWIC PULP AND PAPER CO. LTD.

Description of Site: Although called Pulp and Paper, only pulp is the end result. Approximately 625 T of hardwood are processed daily. Bleached hardwood kraft pulp used in the making of newsprint, is the end product. The general tour would include the many processes used in making of pulp - making of chips, cooking, washing, bleaching and cleaning. The water pollution system and aeration ponds are also available. The burning of hog fuel in the bark burner as well as the importance of its use as a major source of energy will be stressed.

Location of Site: This site is located halfway between Fredericton and Woodstock. Visible from the Trans-Canada Highway, it is 9 km from it on the road to Nackawic.

Grade Level: Grades 8 - 12

Tour Length: 1-1½ hours

Size Limitations: 40 students

Supervision Requirements: 1 adult for 20 students

Booking Arrangements:

Contact: Industrial Relations Manager
Address: St. Anne-Nackawic Pulp and Paper Co. Ltd.
P.O. Box 1000, Nackawic, N.B. E0H 1P0

Phone: 575-2221

Advance Notice: 1½-2 weeks

Availability: Year round

Cost: Free

Special Requirements: Flat footwear should be worn, as well as slacks or jeans.

Preparation:
Booklets on the plant's operation are available at the end of the tour.

Tour Summary:

Students should gain:

a) an understanding of the intricate procedures and equipment used in the making of kraft pulp;
b) an appreciation of the importance of the forests to the N.B. economy;
c) an awareness of the need to use every part of the tree;
d) a knowledge of the growing importance of hog fuel as a source of energy.

SHEDIAC DISTRICT OFFICE - N.B. POWER

Description of Site: The site contains a two-storey, 650 square metre solar-heated office area and an electrically-heated warehouse which incorporate various energy conservation techniques such as a waste heat exchanger, earth berms and windbreaks. The site also contains a 2 kw wind generator which powers the District's mobile radio system.

Location of Site: The Shediac District Office is located on the Ohio Road (Highway No. 140) in Shediac between East Main Street and the Shediac By-Pass (Highway No. 15).

Grade Level: Grades 1 to 12

Tour Length: 3/4 hour

Size Limitations: 40 maximum. Groups will be divided into groups of 12 for the tour.

Supervision Requirements: 1 adult for 20 students

Booking Arrangements:

Contact: Business Supervisor
Address: P.O. Box 400, Shediac, N.B.

Phone: 532-2394

Advance Notice: 2 to 3 weeks

Availability: Year round, Monday to Friday, 8:30 a.m. to 5 p.m.

Cost: Free

Special Requirements: None

Preparation:
None. If the school is unable to take a field trip, a guest speaker from Information Services, Fredericton, is available.

Follow-up:
Pamphlet: "Shediac" on site.
Booklet: "Energy Efficient/Renewable Energy Housing Designs" available from N.B. Power, Information Services, 527 King Street, Fredericton, N.B.

Tour Summary:

Students will be familiarized with the studies carried on concerning:

a) active solar-heat;
b) building design;
c) windbreaks;
d) waste heat exchange;
e) wind generation.

VILLAGE HISTORIQUE ACADIEN - (ACADIAN VILLAGE)

Description of Site: The Village illustrates the Acadian way of living between 1780 and 1880. Through its seventeen historic complexes, a staff in period costume recreates the culture and life of people who faced many difficulties in their struggle for survival. Students will learn of the trades and traditions of the Acadians who lived without our present "energy servants" and see an introductory film on Acadian history.

Location of Site: Route 11, about half way between Caraquet and Grande Anse.

Grade Level: Grades 1 to 12

Tour Length: 2 hours

Size Limitations: None

Supervision Requirements: 1 adult for 15 students

Booking Arrangements:

Contact: Tour Guide/Promotion Staff
Address: Village Historique Acadien
c.p. 820, Caraquet, N.-B. E0B 1K0

Phone: 727-3467

Advance Notice: 1 day

Availability: First weekend of June to Labour Day in September. 10:00 a.m. to 6:00 p.m., daily

Cost: 50¢

Special Requirements: None

Preparation:
Brochures are available on request.

Follow-up:
See "Preparation" above.

Tour Summary:

Students will have the opportunity to become acquainted with a lifestyle limited in "energy servants" and will learn about the alternatives, such as:

a) sun drying fish;
b) hand seeding;
c) hand harvesting;
d) cooking and heating with wood.

NEW BRUNSWICK: OTHER RESOURCES

1. Eel River Converter Station
2. Enheat Inc.
3. Enterprise Foundry Company Limited
4. Moncton Distribution Terminal
5. Salisbury Distribution Terminal

EEL RIVER CONVERTER STATION - N.B. POWER

Description of Site: The Eel River high-voltage direct current converter station in Northern New Brunswick has been assigned as the chief agent in the electrical interconnection between the systems of Hydro-Québec and the New Brunswick Electric Power Commission.

Location of Site: Mallet Street about 1.2 km (3/4 mile) out of Eel River Village

Grade Level: Grades 1-12, recommended for grades 9 to 12

Tour Length: 45 minutes

Size Limitations: 25 students

Supervision Requirements: 1 adult for 25 students

Booking Arrangements:

Contact: Station Supervisor
Address: P.O. Box 520
N.B. Electric Power Commission
Dalhousie, N.B. E0K 1B0

Phone: 826-2701

Advance Notice: 1 week

Availability: Weekdays, 9:00 a.m. - 4:00 p.m., year round, excluding the first and second weeks in May.

Cost: Free

Special Requirements: None

Preparation:
Pamphlet available: "Eel River HVDC Converter Station". For schools that cannot make the trip, a guest speaker is available from Information Services, Fredericton.

Follow-up:
As above, or films "Power in New Brunswick" and "Progress in Power" available from N.B. Power, Information Services, 527 King Street, Fredericton, N.B.

Tour Summary:

A tour of this site will help students gain:

a) an understanding of AC-DC transformation;
b) a knowledge of electrical distribution;
c) an insight into the necessity of cooperation and power sharing among utilities; and
d) have seen the world's first commercial HVDC solid state converter station.

FAWCETT DIVISION - ENHEAT INC.

Description of Site: The head office of 'Enheat' is located on a 9-acre site, in Sackville, where Charles Fawcett built a store in 1852 to provide tinware for the settlers. Later on he obtained patterns and, aided by a practical moulder, made his first stove. Today the Sackville plant covers a total area of 10,519 square metres. Students will learn about the manufacturing of coal, wood and oil heaters, furnaces and ranges for home, camp, and industrial use.

Location of Site: 100 East Main Street, Sackville

Grade Level: Grades 1 to 12

Tour Length: 1/2 hour

Size Limitations: 15 students

Supervision Requirements: 1 adult for 15 students

Booking Arrangements:

Contact: Plant Manager
Address: 100 East Main Street, Sackville, N.B. E0A 3C0

Phone: 536-1520

Advance Notice: 1 month

Availability: Year round, 8 a.m. to 4:20 p.m.

Cost: Free

Special Requirements: None

Preparation:
Booklet: Time and Tide in the Atlantic Provinces and product descriptions are available.

Follow-up:
See preparation above.

Tour Summary:
Students will become acquainted with:
a) appliances designed for different fuels;
b) the technology involved in range and heater design;
c) the importance of utilizing a variety of fuel sources.

THE ENTERPRISE FOUNDRY COMPANY LTD.

Description of Site: The Foundry has been in operation for more than a century producing wood and coal furnaces, heaters and cook stoves. Tour highlights include the pouring of molds, enameling, and the assembly of gas and electric stoves.

Location of Site: Lorne Street next to the C.N.R. Station, Sackville

Grade Level: Grades 1 to 12

Tour Length: 2 hours

Size Limitations: 40 maximum

Supervision Requirements: 2 adults (at least) for 40 students - grades 1-3
1 adult for 40 students - grades 4-12

Booking Arrangements:

Contact: Plant Manager
Address: Enterprise Foundry Co. Ltd.
Lorne Street, Sackville, N.B.
E0A 3C0

Phone: 536-1160

Advance Notice: 3 days

Availability: Year round. The best time is 1:30 to 3:30 p.m. so that students may see the iron molds poured.

Cost: Free

Special Requirements: Good footwear

Preparation:
None

Follow-up:
Contact Community Arts Centre, Sackville (536-2678) about a showing of "Foundry Impressions". One month advance notice needed.

Tour Summary:
Students will be shown the original method of molding using natural bank sand as well as the newer air set method. They will also become acquainted with:
a) appliances designed for different fuels;
b) the technology involved in range, heater and furnace design.

MONCTON DISTRIBUTION TERMINAL - N.B. POWER

Description of Site: The Moncton Terminal is the distribution point for electricity to the city and areas north of the city. It has the only gas turbine in the province as a back-up for peak demands or incoming failure.

Location of Site: Located near the intersection of Edinburgh Dr. and Killam Dr.

Grade Level: Grades 1-12

Tour Length: 1 hour

Size Limitations: 40 maximum

Supervision Requirements: 1 adult for 20 students

Booking Arrangements:

Contact: District Supervisor
Address: N.B. Power
P.O. Box 830, Moncton, N.B.

Phone: 855-6055

Advance Notice: 2 weeks

Availability: 9 a.m. - 4 p.m. on Tuesdays, Wednesdays, or Thursdays

Cost: Free

Special Requirements: None

Preparation:
Films: "Power in New Brunswick", "Progress in Power" and "The Great Search" (elementary level) available from N.B. Power, 527 King Street, Fredericton, N.B. If the group cannot make the trip, a guest speaker is available.

Follow-up:
As "PREPARATION"

Tour Summary:
Students will have the opportunity to learn how:
a) power comes into a terminal, and
b) how electrical distribution takes place.

SALISBURY DISTRIBUTION TERMINAL - N.B. POWER

Description of Site: The Salisbury Terminal receives power at 345 000 V which is stepped down and goes to Nova Scotia.

Location of Site: The terminal is located on the Ayles Road about half way between Salisbury and Colpitts Settlement.

Grade Level: Grades 1 to 12

Tour Length: 1 hour

Size Limitations: 40 maximum

Supervision Requirements: 1 teacher for 20 students

Booking Arrangements:

Contact: Moncton District Supervisor
Address: N.B. Power
P.O. Box 830, Moncton, N.B.

Phone: 855-6055

Advance Notice: 1 day

Availability: 9 a.m. - 4 p.m., Tuesday, Wednesday, and Thursdays.

Cost: Free

Special Requirements: None

Preparation:
Films: "Power in New Brunswick", "Progress in Power", and "The Great Search" (elementary level) are available from N.B. Power, 527 King Street, Fredericton, N.B. If the group cannot make the trip, a guest speaker is available.

Follow-up:
See preparation.

Tour Summary:
Students will have the opportunity to learn how:
a) power comes into a terminal;
b) is stepped down, and
c) how electrical distribution takes place.

Nova Scotia

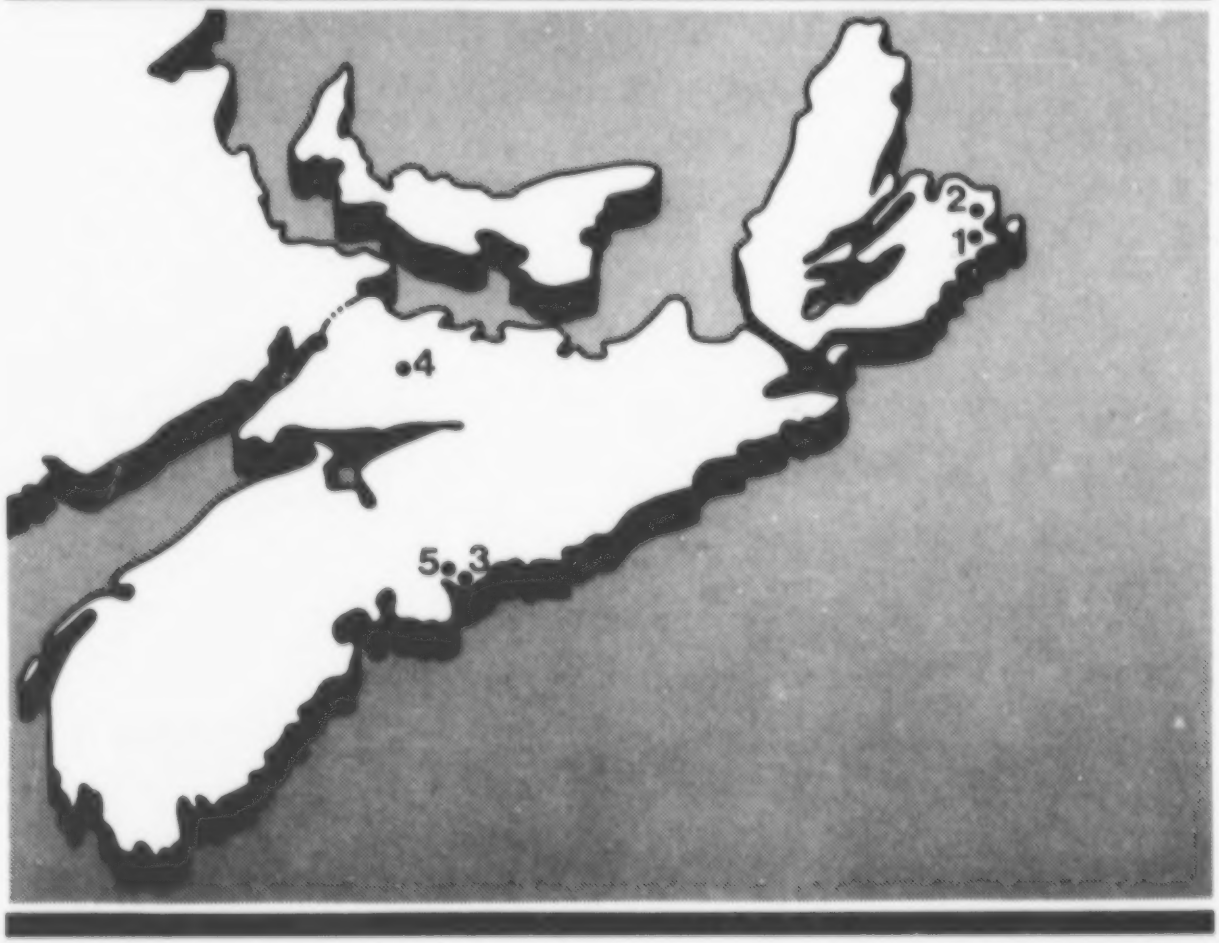
Non-Renewable Sites

Nouvelle-Ecosse

Installations à Energie Non Renouvelable

1. Atomic Energy of Canada Limited Chemical Company
2. Glace Bay Miners' Museum
3. Imperial Oil Refinery
4. Springhill Miners' Museum
5. Texaco Oil Refinery

1. *Compagnie de produits chimiques, Energie atomique du Canada*
2. *Musée minier de Glace Bay*
3. *Raffinerie de la Imperial Oil*
4. *Musée minier de Springhill*
5. *Raffinerie de la Texaco Oil*



NOVA SCOTIA: NON-RENEWABLE SITES

1.	Atomic Energy of Canada Limited Chemical Company	Nuclear
2.	Glace Bay Miners' Museum	Coal
3.	Imperial Oil Refinery	Oil
4.	Springhill Miners' Museum	Coal
5.	Texaco Oil Refinery	Oil

ATOMIC ENERGY OF CANADA LIMITED CHEMICAL COMPANY

Description of Site: This site is an information center containing various models of a heavy water plant and displays concerning the nuclear industry in Canada. A visit will include an audio-visual presentation and an overview of the physical plant site.

Location of Site: South Street, Glace Bay, N.S.

Grade Level: 1 - 12

Tour Length: 45 to 90 minutes

Size Limitations: 35-40

Supervision Requirements: 1:35

Booking Arrangements:

Contact: Community Relations Officer

Address: Atomic Energy of Canada Ltd. Chemical Company
P.O. Box 5, Glace Bay, N.S. B1A 5V8

Phone: 849-2400 local 180

Advance Notice: 1 week

Availability: All year (mid-May to Labour Day, 3 bilingual guides are available)

Cost: No tour cost

Learning Outcomes: Students will understand:

(1) Some of the technology used in the production of heavy water for Candu nuclear power plants.
(2) What heavy water is and why it is required in Candu nuclear reactors.

Special Requirements:

None

Preparation and Follow-up:

(1) An elementary understanding of atomic energy will be helpful but not essential.
(2) Information materials can be obtained from Atomic Energy of Canada ltd. (Ottawa office) for further investigation.
(3) Films available on request from the information centre.

GLACE BAY MINERS' MUSEUM

Description of Site: This site contains a phased out coal mine, a museum and restored homes of the 19th Century. Retired miners act as tour guides demonstrating a room and pillar mine (1850-1930) showing mining equipment, ventilation systems and mining techniques.

Location of Site: Quarry Point, Glace Bay

Grade Level: 1 - 12

Tour Length: 20 minutes (mine) ... variable for museum and homes

Size Limitations: No restrictions

Supervision Requirements: 1:35

Booking Arrangements:

Contact: Miners' Museum

Address: Quarry Point, Glace Bay, N.S. B1A 5T8

Phone: 849-4522

Advance Notice: Preferred for mid-September - mid-June

Availability: 24 hours notice

Cost: Museum: Adult - $1.00 Students - 50¢ Mine: Adult - $3.00 Students - $2.00

Learning Outcomes: Students will understand:

Mine

(1) The technology of coal mining during the 19th Century.
(2) How some of the mining equipment was used (students can handle a coal cutter).
(3) Some precautions and safety requirements of a mine operation.

Museum

(4) The economic and social impacts of coal mining on a local area during the 19th Century.
(5) The history of coal mining.

Special Requirements:

(1) Headgear and raingear are provided for all participants entering mine.

Preparation and Follow-up:

(1) An understanding of coal mining would be helpful but not essential.

IMPERIAL OIL REFINERY

Location of Site: Dartmouth

Grade Level: 9 - 12

Tour Length: 1/2 hour and 20 minutes for questions

Size Limitations: None

Supervision Requirements: 1:35

Booking Arrangements:

Contact: External Affairs
Address: P.O. Box 220, Halifax, N.S. B3J 2N6

Phone: 424-6933

Advance Notice: One month in advance so that topics can be prepared

Availability: All year

Cost: None

Learning Outcomes: Students will:
(1) Understand how an oil refinery works;
(2) Understand resources and the energy future for Canada.

Special Requirements:
None

Preparation and Follow-up:
Film "Refinery" is available.

SPRINGHILL MINERS' MUSEUM

Mailing Address: P.O. Box 150, Springhill, N.S. B0M 1X0

Description of Site: This museum has more than 100 exhibits of 19th Century mining including mining artifacts and various lifestyle remnants. A tour of an underground mine is provided.

Location of Site: Springhill, Nova Scotia

Grade Level: 1 - 12

Tour Length: 20 minutes (mine) ... variable for museum.

Size Limitations: 35 - 40

Supervision Requirements: 1:35

Booking Arrangements:

Contact: Museum Manager or Recreation Department
Address: Black River Road, Springhill, N.S.

Phone: 597-3449 or 597-2873

Advance Notice: 1 week

Availability: May 1st to October 30th.

Cost: $1.00 per student; $2.00 per adult, bus driver and supervisor free.

Learning Outcomes: Students will understand:

Mine
(1) The technology of coal mining during the 19th Century.
(2) Some precautions and safety requirements of a mine operation.
(3) The risks and hard work required of 19th Century miners.

Museum
(4) The history of coal mining (19th Century).
(5) Some of the social lifestyles adopted during 19th Century.

Special Requirements:
(1) Clothing and safety equipment is provided for tour of underground mine.

Preparation and Follow-up:
(1) Some understanding of coal mining would be useful.

TEXACO OIL REFINERY

Description of Site: This refinery has a complete plant for processing crude oil including ship loading and unloading facilities.

Location of Site: Eastern Passage, Pleasant Street, Dartmouth, N.S.

Grade Level: 8 - 12

Tour Length: 2 to 3 hours

Size Limitations: 15 students

Supervision Requirements: 1:15

Booking Arrangements:

Contact: Employee Relations Dept.
Address: P.O. Box 667, Dartmouth, N.S. B2Y 3Y9

Phone: 469-6360

Advance Notice: 2 weeks

Availability: Year round

Cost: No tour cost

Learning Outcomes: Students will understand:

(1) The complex process of refining crude oil into specific use petroleum-based consumables.
(2) The high cost (financial, human, material and energy) of refining crude oil.
(3) The safety precautions necessary in the process of refining crude oil.
(4) Some of the environmental impacts and precautions in refining crude oil.
(5) Pollution controls.

Special Requirements:

All students entering refinery sign a form removing company from liability due to accident and injury.

Preparation and Follow-up:

(1) An elementary understanding of the refining process would be useful but not essential.

Tour Highlights: This tour is conducted in 3 parts:

(1) General introduction by staff.
(2) Tour of refinery (in groups of 7 or 8).
(3) Questions and summation.

Nova Scotia

Renewable Sites

Nouvelle-Ecosse

Installations à Energie Renouvelable

1. Annapolis Tidal Power Exhibit
2. Public Archives of Nova Scotia
3. Small Scale Energy Demonstration Projects

1. *Installation marémotrice d'Annapolis*
2. *Archives publiques de la Nouvelle-Ecosse*
3. *Projets d'exploitation énergétique à petite échelle*

NOVA SCOTIA: RENEWABLE SITES

1.	Annapolis Tidal Power Exhibit	Tidal
2.	Public Archives of Nova Scotia	Solar
3.	Small Scale Energy Demonstration Projects	Renewable

ANNAPOLIS TIDAL POWER EXHIBIT

Description of Site: A restored Adams-Ritchie House in Annapolis Royal; site consists of exhibit site and approximately 2 km away, the tidal project.

Location of Site: Annapolis Royal

Grade Level: 5 - 12

Tour Length: 20 minutes (exhibit)

Size Limitations: 35

Supervision Requirements: 1:35

Booking Arrangements:

Contact: Public Relations Officer
Address: Annapolis Tidal Power Exhibit, Adams-Ritchie House, St. George Street, Annapolis Royal

Phone: 532-7848

Advance Notice: 1 day

Availability: Late Spring to early Fall

Cost: None

Learning Outcomes: Students will understand:
(1) The history of tidal power development for Nova Scotia.
(2) The present and future uses of tidal power for Nova Scotia.
(3) The technology at present for tidal power.
(4) Limitations and present problems in tidal power research.

Special Requirements:
None

Preparation and Follow-up:
(1) Some understanding of tidal or hydro power would be useful but not essential.

Comments:
It has not yet been determined if the Adams-Ritchie House will be in use the summer of 1983 or if the permanent Interpretive Centre, on site, will be open. Therefore, people wishing information should call Halifax (424-8522) to check current status.

PUBLIC ARCHIVES OF NOVA SCOTIA

Description of Site: Large research facility of historical works specializing in Nova Scotia and its traditions. Has the largest solar heating unit in the province.

Location of Site: Halifax

Grade Level: 6 - 12

Tour Length: 1-1½ hours

Size Limitations: Maximum 20 - 35

Supervision Requirements: 1 teacher

Booking Arrangements:

Contact: Mrs. Terri Hayward, Secretary
Address: 6016 University Avenue, Halifax, N.S. B3H 1W4

Phone: 423-9115

Advance Notice: At least 1 week

Availability: All year

Cost: None

Learning Outcomes:

(1) Learn what resources are available to the public on the historical development of Nova Scotia.

Special Requirements:

None

SMALL SCALE ENERGY DEMONSTRATION PROJECTS

Description: Across the province, a number of individuals, local institutions, small businesses and local governments have received grants to construct and operate small scale energy projects.

All receiving this grant must allow for public viewing of the project, when requested with notice and at times not inconvenient, for a three-year period from project completion.

Most projects involve some form of renewable energy.

Location: Across the province

Grade Level: Grades 1 - 12

Tour Length: 30 - 90 minutes

Size Limitations: To be confirmed at time of booking

Supervision Requirements: Minimum 1:15

Booking Arrangements:

Contact: A listing of sites can be obtained from the Department of Mines and Energy

Address: Department of Mines and Energy
P.O. Box 668
Halifax, N.S. B3J 2T3

Phone: 424-8057 or 424-6291

Advance Notice: Minimum 1 week

Availability: To be determined by project owner

Cost: No tour site costs

Learning Outcomes:

Students will understand:

1. the range of applications in small and local projects for one or more of the renewable energy sources
2. the importance of conservation in everyday living
3. the technology and resources available to utilize a renewable energy source.

Special Requirements and Suggestions:

No assumptions or demands should be made in arranging to visit a small scale energy demonstration project. The practice of good public relations skills is necessary.

Preparation and Follow-up:

See the introductory section of this manual entitled "How can I ensure a successful field trip?"

NOVA SCOTIA: SPEAKERS AND OTHER RESOURCES

1. Atomic Energy of Canada Limited Chemical Company
2. Bedford Institute of Oceanography
3. Environment Canada
4. Ecology Action Centre
5. Imperial Oil Refinery
6. Nova Scotia Energy Education Program
7. Nova Scotia Museum
8. Occupational Health Department, Environment Health
9. Project Ploughshares
10. Solar Nova Scotia
11. Universities of Nova Scotia
    a) Acadia University
    b) University of the College of Cape Breton
    c) Dalhousie University
    d) Mount Saint Vincent University
    e) University of Saint Anne
    f) Saint Francis Xavier University
    g) Saint Mary's University
    h) Technical University of Nova Scotia

ATOMIC ENERGY OF CANADA LIMITED CHEMICAL COMPANY

Service: Speaker and A.V. material services

Location of Site: Cape Breton (Glace Bay)

Grade Level: 7 - 12

Tour Length: Variable (1 to several hours)

Size Limitations: None

Supervision Requirements: 1:35 for speakers

Booking Arrangements:

Contact: Public Relations

Address: Atomic Energy of Canada Limited Chemical Company
P. O. Box 5, Glace Bay, N.S. B1A 5V8

Phone: 849-2400 Extension 180

Advance Notice: 1 week

Availability: All year

Cost: None

Learning Outcomes: The student will understand
(1) Theory of nuclear fission
(2) Uranium mining - methods and effects
(3) Nuclear waste disposal problems
(4) Prospects for a nuclear future
(Any other topic dealing with nuclear power can be prepared)

Special Requirements:
To be determined at initial contact with speaker

Preparation and Follow-Up:
There are 10 films and 5 slide shows available.

BEDFORD INSTITUTE OF OCEANOGRAPHY

Speaker's Service: Provides speakers on an infrequent basis.

Location of Site: Dartmouth

Grade Level: 10 - 12

Lecture Length: Variable - usually one hour (on occasion, B.I.O. has displays and researchers available for 1 day geared for grade 12 students to view oceanographic research.)

Size Limitations: None

Supervision Requirements: 1:35

Booking Arrangements:

Contact: Public Relations Manager

Address: Bedford Institute of Oceanography
P.O. Box 1006, Dartmouth, N.S.

Phone: 426-3251

Advance Notice: One month in advance, a written request

Availability: All year

Cost: None

Learning Outcomes: Students will understand:

(1) Process of finding resources offshore;
(2) Hydroelectric facilities and problems associated with such developments;
(3) Ecological effects of energy developments on oceans;
(4) Other topics according to expertise available.

Special Requirements:

None

Preparation and Follow-up:

None

ECOLOGY ACTION CENTRE AND THE RESOURCE CENTRE FOR ENVIRONMENTAL ACTION

Service: This is a place to do research. There's a tremendous diversity of topics including oceans, uranium mining and nuclear power, toxic chemicals, off-shore oil, renewable energy sources, conservation.

Location of Site: Old Public Archives Building, Dalhousie University, Halifax

Grade Level: Grade 5 or 6 through postgraduate university

Talk Length: Variable (usually 1 - 1½ hours)

Size Limitations: None

Supervision Requirements: 1:35

Booking Arrangements:

Contact: Coordinator, Ecology Action Centre

Address: Ecology Action Centre
Old Provincial Archives Building
Dalhousie University
Halifax, N.S. B3H 3J5

Phone: (902) 422-4311

Advance Notice: 2-3 weeks, preferably longer, for speakers at a school. For use of Resource Centre, only a few days' notice is necessary.

Availability: All year - greater Halifax-Dartmouth area

Cost: Transportation costs if outside Halifax area. Persons or organizations using this service are encouraged to become a member of this group.

Learning Outcomes:

(1) Greater appreciation of environmental and energy issues;
(2) Understand alternates to conventional energy systems;
(3) Analyze the role of special interest groups;
(4) Discuss the social effects of energy and related technologies.

Special Requirements:

None

Preparation and Follow-Up:

None

ENVIRONMENT CANADA

Service: A speakers' bureau on such topics as acid rain, energy resources, or environmental effects of industrialization.

Location of Site: Your school.

Grade Level: P - 12

Talk Length: Variable (from 1/2 hour - 2 hours)

Size Limitations: Variable

Booking Arrangements:

Contact: Information Office

Address: 5th Floor, Queen Square, 45 Alderney Drive,
Dartmouth, N.S. B2Y 2N6

Phone: 426-7990

Advance Notice: 3 weeks

Availability: All year

Cost: None

Learning Outcomes: Students will:

(1) Understand some of the environmental impacts of using various energy sources;
(2) Understand some of the social costs and trade-offs in using various energy sources;
(3) Investigate the technical aspects of acid raid including monitoring and analysis.

Special Requirements:

None

Preparation and Follow-up:

(1) Several slide shows and written commentaries can be obtained either before or after the speaker. The best slide show is "Acid Rain: The Choices Are Ours".
(2) Many information brochures depending upon the topic required are available.

IMPERIAL OIL REFINERY

Title: Imperial Oil Refinery

Description of Site: Complete refining process with ship loading and unloading facilities.

Location of Site: 600 Pleasant Street, Dartmouth, N.S. B2Y 3Z7

Grade Level: 7 - 12

Tour Length: 2½ hours

Size Limitations: 15-30

Supervision Requirements: 1:30

Booking Arrangements:

Contact: Secretary to Refinery Manager

Address: Box 1001, Dartmouth, N.S. B2Y 3Z7

Phone: 424-7222

Advance Notice: 2 weeks

Availability: Year round

Cost: No tour cost

Learning Outcomes: Students will understand:

(1) The complex process of refining crude oil into specific use petroleum based consumables.
(2) The high cost (financial, human, material and energy) of refining crude oil.
(3) The safety precautions necessary in the process of refining crude oil.
(4) Some of the environmental impacts and precautions in the refining of crude oil.

Special Requirements:

None

Preparation and Follow-Up:

(1) An elementary understanding of crude oil refining process is helpful but not essential.
(2) Booklet "Oil and Gas" (extraction to refinement) is available upon request.

Tour Highlights: This tour is conducted in 4 parts:

(1) Viewing of film presentation entitled "Refinery"
(2) Tour of laboratories
(3) Bus tour of processing units and mechanical shops.
(4) Questions and summation

NOVA SCOTIA ENERGY EDUCATION PROGRAM

Description of Site: The program is presented in Nova Scotia schools by two teachers who work from the Halifax office of the Nova Scotia Department of Mines and Energy.

Location of Site: Schools throughout Nova Scotia

Grade Level: P - 12 (programs are designed for grade level groupings, e.g., P - 2, 3 - 6, 7 - 9, and 10 - 12)

Tour Length: Programs are individually arranged with the school principal and/or teacher(s).

Size Limitations: None

Supervision Requirements: Teachers are encouraged to attend the program.

Booking Arrangements:

Contact: Energy Education Officer,
Nova Scotia Department of Mines and Energy

Address: P.O. Box 668, Halifax, N.S. B3J 2T3

Phone: 1-424-5727 (toll free anywhere in Nova Scotia)

Advance Notice: The program is offered on a request basis. The requests are scheduled in consultation with the school and are filled as soon as possible after being received.

Availability: School year

Cost: No cost to schools

Learning Outcomes: It is hoped that students, depending on their grade level(s) and abilities, will understand:

(1) On which energy sources Nova Scotians depend.
(2) On which energy forms Nova Scotians depend.
(3) What energy is.
(4) The importance of wise energy use.
(5) How to conserve energy at school, home and beyond.

Special Requirements:

None

Preparation and Follow-Up:

(1) An introduction to "energy" by the students' teacher(s) is very helpful.
(2) Various resource materials can be left with the teacher(s) after the presentation.

NOVA SCOTIA MUSEUM

Description: The Museum houses exhibits, collections and professional staff dealing with the social and natural history of Nova Scotia. Natural History collections include birds, mammals, insects, plants, marine invertebrates, reptiles, amphibians and fishes. Public and school use includes visits, classes, loans, inservices and publications. Research into elements of natural history is carried out by Science staff.

Location of Site: 1747 Summer Street, Halifax B3H 3A6

Grade Level: P - 12

Tour Length: Visit length ranges from 30 to 45 minutes for a simple gallery visit to appropriately longer for planned programs.

Size Limitations: Group size ranges from unlimited for gallery visits without staff assistance to small numbers for particular planned programs.

Supervision Requirements: 1:35

Booking Arrangements:

Contact: Education Coordinator

Address: 1747 Summer Street, Halifax, N.S. B3H 3A6

Phone: 429-4610

Advance Notice: For group or personal visits not assisted by Museum staff, no notice is mandatory although it is appreciated. For staff-assisted visits and programs as much notice as possible is prudent.

Availability: All year

Cost: None

Learning Outcomes: Students will understand:
(1) Influence of energy on ecosystems;
(Most topics can be adapted to individual class interests.)

Special Requirements:
None

Preparation and Follow-Up:
Depending upon the topic, museum staff members may be able to suggest exercises before or after the talk.

For a detailed catalogue of the Learning Resources of the Nova Scotia Museum, write to The Education Section.

OCCUPATIONAL HEALTH DEPARTMENT - ENVIRONMENT HEALTH

Service: Speakers are available to talk on occupational health hazards.

Grade Level: 10 - 12

Talk Length: Variable

Size Limitations: None

Booking Arrangements:

Contact: Director

Address: Box 488, Halifax, N.S. B3J 2R8

Phone: 424-4428

Advance Notice: 3-4 months

Availability: All year

Cost: None

Learning Outcomes: The student will:

(1) Be informed of potential health hazards in a particular industry or industry in general;
(2) Be informed on how these can be controlled by companies and workers.

Special Requirements:

Teachers should address specific questions on topics of interest so that staff resource people can research and prepare the talk. There is no formal program of talks so there may not always be someone available.

Preparation and Follow-Up:

PROJECT PLOUGHSHARES

Description of Site: N.S. branch of the Canadian Council of Churches Project Ploughshares which has a public research facility at Saint Mary's University and speakers willing to travel to schools, provided the school is within a reasonable driving distance of Halifax and Wolfville.

Location of Site: Halifax, Wolfville and Truro

Grade Level: 12

Discussion Length: 1 hour

Size Limitations: None

Supervision Requirements: 1:30

Booking Arrangements:

Contact: International Education Centre, c/o Saint Mary's University, Halifax, N.S. 429-9780 Extension 498
Valerie Osborne (Halifax area)
Peggy Hope-Simpson (Wolfville area)

Address: Project Ploughshares N.S., c/o The International Education Centre, Saint Mary's University, Halifax, N.S. B3H 3C3

Alternative Address:
5 Blink Bonnie Terrace
Dartmouth, N.S. B2Y 2C9

Phone: Halifax area: 469-8985
Wolfville area: 542-3906

Advance Notice: 2 weeks

Availability: All year

Cost: None

Learning Outcomes: The student will
(1) Understand the problems of nuclear weapons and effects of the arms race.

Special Requirements:
None

Preparation and Follow-Up:

The following are available for use before or after a visit:

(1) Three slide-tape shows
   (a) "Acceptable Risks" (Best)
   (b) "Sharing Global Resources"
   (c) "The Last Slide Show"

(2) Six study units on nuclear disarmament

(3) Movie "War without Winners" - Rental $20.00 from Project Ploughshares, 321 Chapel Street, Ottawa K1N 7Z2

(4) Selected periodicals and books.

SOLAR NOVA SCOTIA

Speaker Service: Many resource people dealing with solar and its related aspects (wind, biomass, tidal, active and passive solar)

Location of Site: Resource people primarily in Cape Breton, Halifax and Annapolis Valley

Grade Level: 6 - 12

Tour Length: Variable (usually 1 hour)

Size Limitations: 35

Supervision Requirements: 1:35

Booking Arrangements:

Contact: Joanne Lamey/John Young

Address: Solar Nova Scotia, P.O. Box 211, Halifax, N.S. B3J 2M4

Phone: 422-5564

Advance Notice: 2 weeks

Availability: All year - depending upon availability of resource people.

Cost: None

Learning Outcomes:

(1) Compare alternatives to conventional energy sources as to cost, availability, and social implications;
(2) See examples of alternatives being used by people in local communities acting as individuals or as co-ops;
(3) Investigate the future of energy resources and what can be done to alleviate future problems.

Special Requirements:

None

Preparation and Follow-Up:

None

UNIVERSITIES OF NOVA SCOTIA

Title: Universities of Nova Scotia

Service: Resource people are at the following universities who may give talks. Contact Department of Biology, Chemistry, Engineering, Geology or Environmental Studies.

Grade Level: 10 - 12

Talk Length: Variable - usually 1 hour

Size Limitations: None

Supervision Requirements: 1:35

Booking Arrangements:

Contact:
Address:
Phone:

Acadia University
Wolfville, N.S.
542-2201

Saint Francis Xavier Univ.
Antigonish, N.S.
863-3300

College of Cape Breton
Sydney, N.S.
539-5300

Saint Mary's University
Halifax, N.S.
429-9780

Mount Saint Vincent Univ.
Halifax, N.S.
443-4450

Univ. of Saint Anne
Church Point, N.S.
769-2114

Technical Univ. of N.S.
Centre for Energy Studies
429-3902

Note: Cost, special requirements, preparation and follow-up should be clarified at time of contact with speakers.

Prince Edward Island

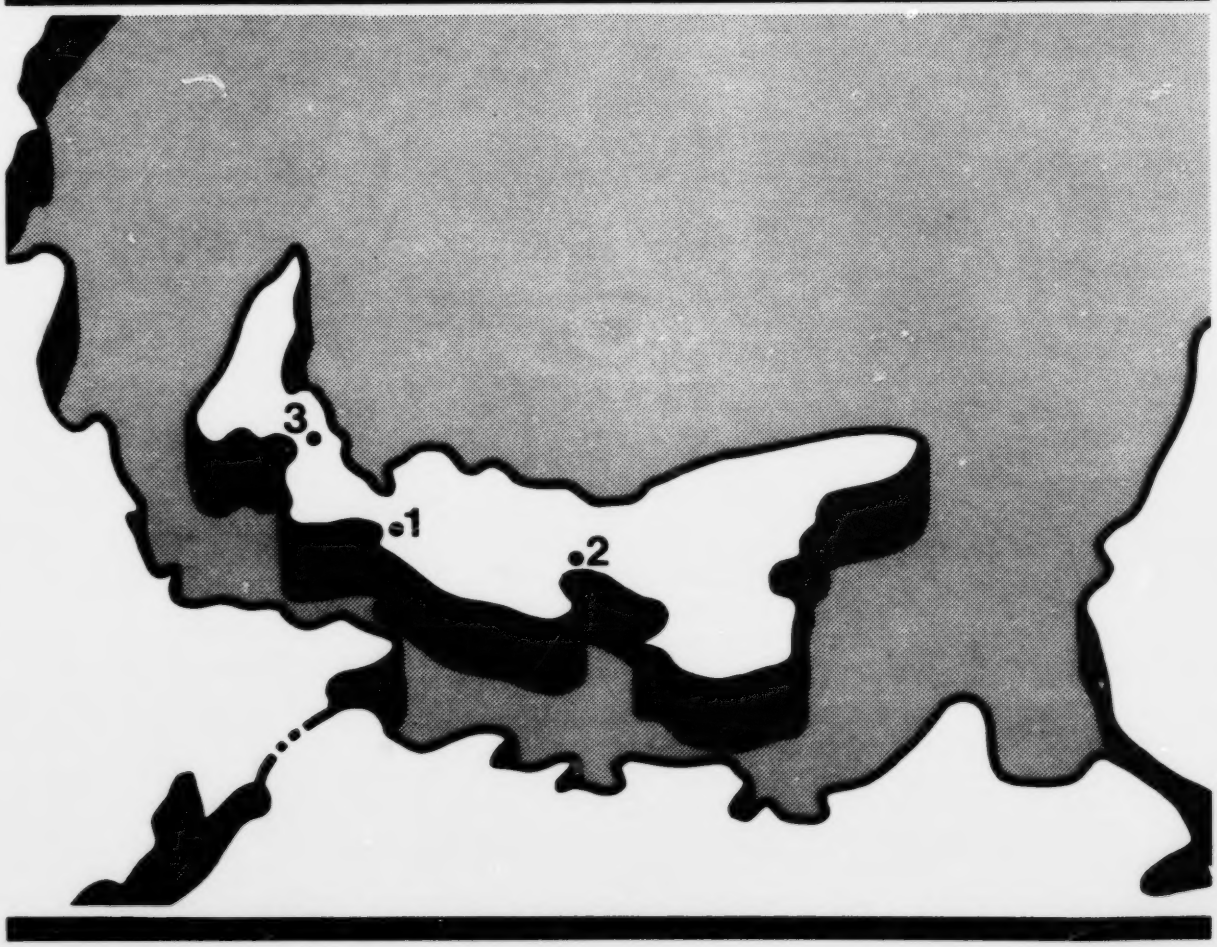
Non-Renewable Sites

Ile-du-Prince-Edouard

Installations à Energie Non Renouvelable

1. Bedeque Switching Station
2. Charlottetown Generating Station
3. Sherbrooke Sub-Station

1. Centrale de commutation de Bedeque
2. Centrale de Charlottetown Centre de contrôle de l'énergie
3. Sous-station de Sherbrooke



PRINCE EDWARD ISLAND: NON-RENEWABLES

1.	Bedeque Switching Station	Coal/Oil
2.	Charlottetown Generating Station	Coal/Oil
3.	Sherbrooke Sub-Station	Coal/Oil

BEDEQUE SWITCHING STATION

Description: Junction of several transmission lines

Location: Bedeque, Prince Edward Island

Grade Level: Grades 9 - 12

Tour Length: 60 - 90 minutes

Size Limitations: 20 maximum

Supervision Requirements: 1:20

Booking Arrangements:

Contact Person: Public Relations Supervisor

Address: Maritime Electric
Box 1328
Charlottetown, Prince Edward Island

Phone: 892-6531

Advance Notice: 2 - 3 weeks

Availability: April to November

Cost: No tour site costs

Learning Outcomes: Students will understand:

1. how electricity is transmitted and distributed on Prince Edward Island
2. how transmission lines are constructed.

Special Requirements and Suggestions:

1. Adequate clothing and footwear for time of year.
2. Some understanding of how electricity is generated would be useful.

Preparation and Follow-up:

1. Knowledge or interest in electricity supply on Prince Edward Island.
2. Consult Media Centre, 202 Richmond Street, Charlottetown for appropriate films.

CHARLOTTETOWN GENERATING STATION
ENERGY CONTROL CENTRE

Description: The Island's largest electrical generating complex

Location: Charlottetown, Prince Edward Island

Grade Level: Grades 9-12

Tour Length: 90 - 120 minutes

Size Limitations: 30 maximum

Supervision Requirements: 1:15

Booking Arrangements:

Contact Person: Public Relations Supervisor

Address: Maritime Electric
Box 1328
Charlottetown, Prince Edward Island

Phone: 892-6531

Advance Notice: 3 weeks

Availability: Year round, Monday to Friday

Cost: No tour site costs

Learning Outcomes: Students will understand:

1. how electricity is transmitted on Prince Edward Island
2. how electricity is distributed throughout Prince Edward Island
3. what happens during a major breakdown - example, during one of our harsh storms.

Special Requirements:

1. No high heels.
2. No skirts or dresses (safety precautions).

Preparation and Follow-up:

1. A knowledge or interest in electricity supply would be useful.

SHERBROOKE SUB-STATION

Description: Junction of western Prince Edward Island Transmission lines

Location: Sherbrooke Road
Sherbrooke, Prince Edward Island

Grade Level: Grades 9 - 12

Tour Length: 60 - 90 minutes

Size Limitations: 20 maximum

Supervision Requirements: 1:20

Booking Arrangements:

Contact Person: Public Relations Supervisor

Address: Maritime Electric
Box 1328
Charlottetown, Prince Edward Island

Phone: 892-6531

Advance Notice: 2 weeks

Availability: April to November

Cost: No tour site costs

Learning Outcomes: Students will understand:

1. the transmission and distribution of electricity on Prince Edward Island
2. why the lines (transmission) run in the direction they do
3. costs of electricity.

Special Requirements and Suggestions:

1. To be determined at time of initial contact.

Preparation and Follow-up:

1. Knowledge or interest in electricity supply would be useful.
2. Consult Media Centre, 202 Richmond Street, Charlottetown for suitable films.

Prince Edward Island

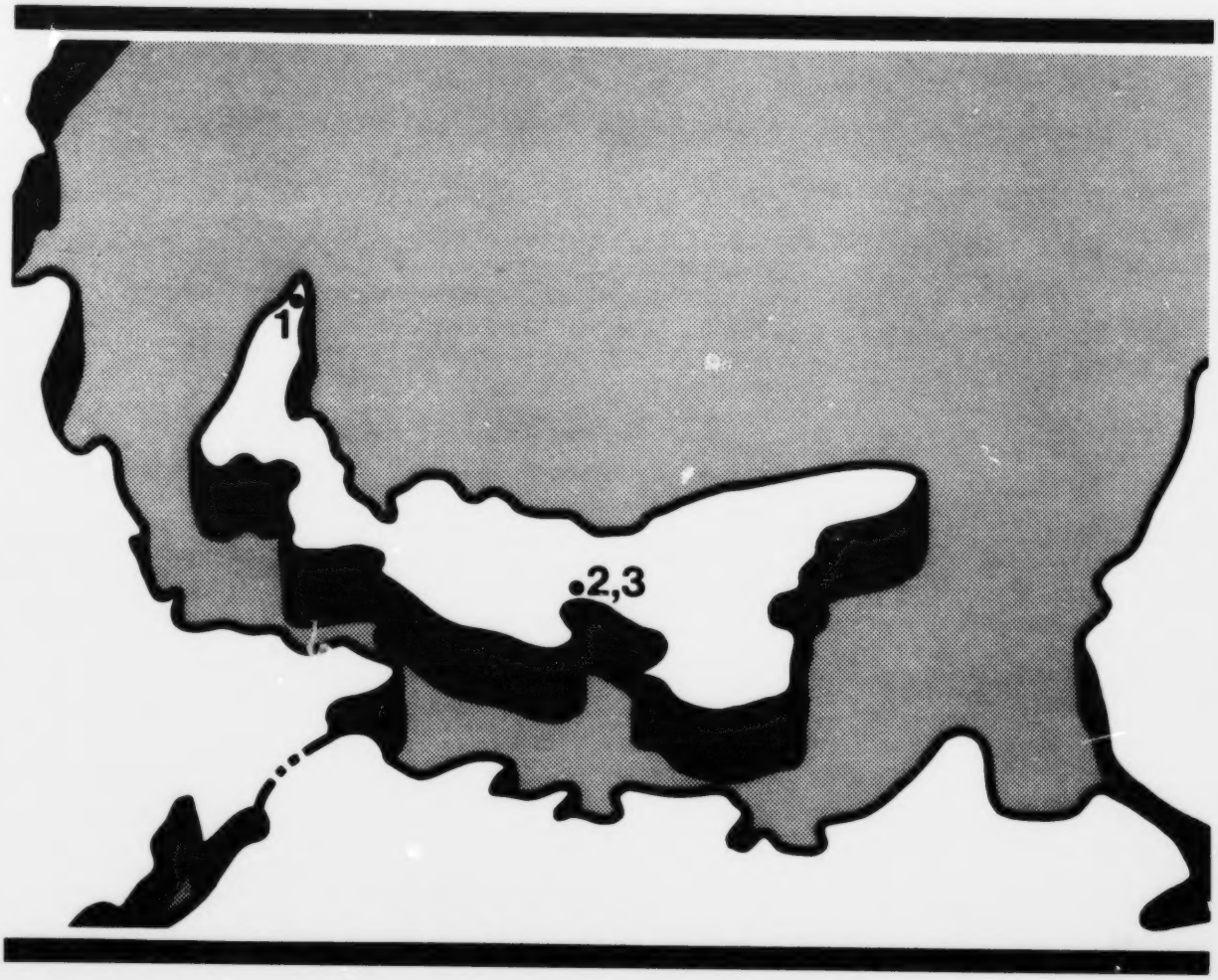
Renewable Sites

Ile-du-Prince-Edouard

Installations à Energie Renouvelable

1. Atlantic Wind Test Site
2. Charlottetown Area Pollution Control Plant
3. Charlottetown Energy From Waste Plant

1. *Atlantic Wind Test Site*
2. *Usine d'épuration de Charlottetown*
3. *Usine de transformation des déchets en énergie (Charlottetown)*



PRINCE EDWARD ISLAND - RENEWABLE RESOURCES

1.	Atlantic Wind Test Site	Wind
2.	Charlottetown Area Pollution Control Plant	Biomass
3.	Charlottetown Energy From Waste Plant	Biomass

ATLANTIC WIND TEST SITE

Description: Write to: Operations Manager
Box 190
Tignish, Prince Edward Island
TOB 2B0

Location: North Cape, Prince Edward Island

Grade Level: Grades 9 - 12

Tour Length: 90 - 120 minutes

Size Limitations: 30 maximum

Supervision Requirements: 1:10

Booking Arrangements:

Contact Person: Operations Manager

Address: Atlantic Wind Test Site
North Cape, Prince Edward Island

Phone: 882-2746

Advance Notice: 3 weeks

Availability: Tuesday afternoons, May through October

Cost: No tour site costs

Learning Outcomes: Students will understand:

1. how electricity is generated from wind energy
2. the importance of maintaining data acquisition systems
3. the types of windmills that exist and their relative advantages and disadvantages.

Special Requirements and Suggestions:

1. A bus must be provided.

Preparation and Follow-up:

1. A pamphlet on the Atlantic Wind Test Site is available upon request.
2. The following films are recommended:
   a) "When the Wind Blows"
   b) "Harness the Wind"
   Films are available at Media Centre, 202 Richmond Street, Charlottetown.

CHARLOTTETOWN AREA POLLUTION CONTROL PLANT

Description: Waste water treatment plant where the methane gas produced is used for heating the building

Location: Riverside Drive
Charlottetown, Prince Edward Island

Grade Level: Grades 6 - 12

Tour Length: 60 - 90 minutes

Size Limitations: 30 maximum

Supervision Requirements: 1:10

Booking Arrangements:

Contact Person: Superintendent

Address: Riverside Drive
Charlottetown, Prince Edward Island

Phone: 892-3629

Advance Notice: 24 hours

Availability: Monday to Thursday inclusive - No Fridays

Cost: No tour site costs

Learning Outcomes: Students will understand:

1. how methane gas is produced at the plant and used for heating purposes
2. how methane gas will be used in the future generation of electricity
3. how waste water is gathered, treated and sent back into our system.

Special Requirements and Suggestions:

1. To be determined at initial time of contact.

Preparation and Follow-up:

1. Pamphlets are available upon request from the Manager of the Pollution Control Plant, or from the Department of Community and Cultural Affairs. It is suggested that they obtain these pamphlets before they embark on the tour.

CHARLOTTETOWN ENERGY FROM WASTE PLANT

Description: A facility for the conversion of municipal solid waste to energy in the form of steam.

Location: Riverside Drive
Charlottetown, P.E.I.

Booking Arrangements:

Contact Person: Operation Manager
Address: PEI Energy Corporation
P.O. Box 2000
Charlottetown, P.E.I.
C1A 7N8

Phone: 892-1051

NOTE: Facility scheduled to be in opeation January, 1983. No further informaion available at this time.

PRINCE EDWARD ISLAND: SPEAKERS AND OTHER RESOURCES

1.	Jones and Manning Architects	Solar
2.	Maritime Electric	Electricity

JONES AND MANNING ARCHITECTS

Service: This firm will provide speaker services with accompanying A.V. presentation.

Location of Service: Jones and Manning Architects
98 Water Street
Charlottetown, Prince Edward Island

Grade Level: Grades 9 - 12

Size Limitations: One class

Supervision Requirements: Teacher requested to attend

Booking Arrangements:

Contact Person: Architect

Address: Jones and Manning Architects
98 Water Street
Charlottetown, Prince Edward Island

Phone: 892-8908

Advance Notice: 3 weeks if possible

Availability: March to July

Cost: No speaker costs

Speaker Topics: Scope of possible topics include:

1. general architecture in energy efficient buildings
2. solar homes, both active and passive designs
3. other topics dealing with energy efficient design can be prepared.

Special Requirements and Suggestions:

1. Some background information on solar energy should be taught at school, including the role of the sun in heating buildings.

Preparation and Follow-up:

1. Suitable films are available from the Media Centre, 202 Richmond Street, Charlottetown.
2. Consider a visit to the Ark or some other suitable site.

MARITIME ELECTRIC

Service: This agency is prepared to provide speakers

Location of Service: Maritime Electric
Box 1328
Charlottetown, Prince Edward Island

Grade Level: Grades 8 - 12

Tour Length: 60 minutes

Size Limitations: 30 maximum

Supervision Requirements: Teacher in attendance

Booking Arrangements:

Contact Person: Public Relations Supervisor

Address: Maritime Electric
Box 1328
Charlottetown, Prince Edward Island

Phone: 892-6531

Advance Notice: 3 weeks

Availability: Year round, Monday to Friday

Cost: No speaker costs

Speaker Topics: Scope of possible topics include:

1. the history of electricity on the Island
2. present and future demands for electricity on Prince Edward Island
3. energy sources used to produce electrical power

Special Requirements and Suggestions:

1. To be determined upon initial contact with speaker.

Preparation and Follow-up:

1. Students should have an elementary understanding of how electricity is generated prior to classroom presentation.
2. Suitable films are available from Media Centre, 202 Richmond Street, Charlottetown.